267063

Class Journal No.

EXCHANGE

LIBRARY OF THE
COLLEGE OF PHYSICIANS
OF PHILADELPHIA

Digitized by the Internet Archive
in 2017 with funding from
The National Endowment for the Humanities and the Arcadia Fund

https://archive.org/details/rockymountainmed6819colo

Rocky Mountain Medical Journal

LIBRARY OF THE
COLLEGE OF PHYSICIANS
OF PHILADELPHIA
1971

January 1971
VOLUME 68 • NUMBER 1

COLORADO • MONTANA • NEVADA • NEW MEXICO • UTAH • WYOMING

Library
College of Physicians
19 South 22nd Street
Philadelphia, Pennsylvania 19103

Menrium® treats the menopausal symptoms that bother him most.

His wife has a lot of different menopausal symptoms, but only a few really irritate *him*. Her hot flashes, her vertigo, her palpitations—that's *her* problem. What really bothers him is her nervousness, her irritability and her excessive anxiety, often expressed by endless "book-shuffling, chain-smoking, reading-lamp" insomnia!

Menrium takes care of hot flashes, vertigo, palpitations in most menopausal women. Menrium provides the well-known antianxiety action of chlordiazepoxide (Librium®) and water-soluble esterified estrogens. It therefore relieves more symptoms than either component separately. It takes care of the vasomotor symptoms as well as the emotional symptoms. This means the symptoms that bother his wife most. And the symptoms that irritate him most.

So, to help them both get through her menopause, remember Menrium.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Management of manifestations generally associated with the menopausal syndrome—anxiety and tension, vasomotor complaints and hormonal deficiency states.

Contraindications: Women with cancer of breast or genitalia, except inoperable cases, and those with known hypersensitivity to chlordiazepoxide and/or esterified estrogens.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Exclude other possible causes of menopausal syndrome manifestations, such as pregnancy. Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering to addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions) similar to those seen with barbiturates have been reported following discontinuance of chlordiazepoxide HCl. Potential benefits of use in pregnancy, lactation or women of childbearing age should be weighed against possible hazards to mother and child. Clinical data inadequate on safety in pregnancy.

Precautions: In elderly and debilitated patients, limit dosage to smallest effective amount of chlordiazepoxide (initially 10 mg or less per day) to preclude ataxia or oversedation; increase gradually as needed and tolerated. Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects—particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in patients with impaired renal or hepatic function. Paradoxical reactions to chlordiazepoxide (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in the treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation very rarely reported in patients receiving Librium® (chlordiazepoxide) and oral anticoagulants.

Adverse Reactions: Untoward effects seen with either compound alone may occur with Menrium. With chlordiazepoxide, drowsiness, ataxia and confusion reported in some patients, particularly in the elderly and debilitated; while usually avoided by proper dosage adjustment, these are occasionally observed at lower dosage ranges. Also reported have been a few instances of syncope; isolated occurrences of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido, and occasional reports of blood dyscrasias, including agranulocytosis, jaundice and hepatic dysfunction. Periodic blood counts and liver function tests advisable during protracted treatment. Changes in EEG patterns (low-voltage fast activity) observed during and after chlordiazepoxide treatment.

With estrogens, headache, nausea and vomiting, anorexia, gastrointestinal discomfort, dysuria and urinary frequency, jitteriness, breast engorgement, formation of breast cysts, skin rashes and pruritus occasionally seen. Administration may also be associated with uterine bleeding and/or followed by withdrawal bleeding.

Usual Dosage: One tablet t.i.d. for 21 days, followed by one-week rest periods.

Menrium® T.I.D.

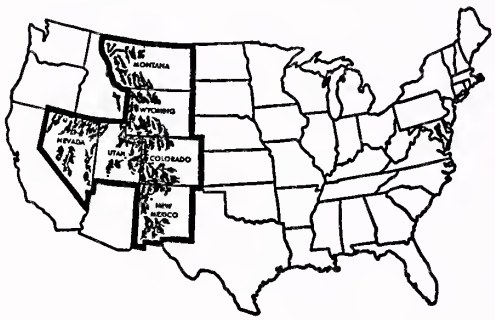
5 mg chlordiazepoxide	5-2	0.2 mg water-soluble esterified estrogens
5 mg chlordiazepoxide	5-4	0.4 mg water-soluble esterified estrogens
10 mg chlordiazepoxide	10-4	0.4 mg water-soluble esterified estrogens

ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

JANUARY 1971

Volume 68, Number 1



Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222 (area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204

Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

Address all manuscripts, organization and other news items relating to editorial content to appropriate state editor, see below.

Editorials

9 SOVEREIGNS AND SERVANTS

10 TRIBUTE TO HILMON CASTLE, M.D.

Articles

11 CARDIOPULMONARY RESUSCITATION TRAINING — *Joyce Johnson, MD, and C. Hilmon Castle, MD, Salt Lake City, Utah*

16 NEWBORN INTENSIVE CARE IN THE INTERMOUNTAIN WEST — *August L. Jung, MD and Karyn Smith, RN, Salt Lake City, Utah*

21 MEDICAL MEMORABILIA—UTAH'S FIRST MEDICAL SCHOOL — *W. K. Fitzpatrick, MD, Salt Lake City, Utah*

23 SPONTANEOUS ABDOMINAL AORTO-VENA CAVAL FISTULA — *Devendra Saksena, MD and Clynn R. Ford, MD, Salt Lake City, Utah*

29 COOPERATIVE TUMOR REGISTRY MELANOMA IN UTAH — *Leland B. Cowan, MD; Charles R. Smart, MD and Virginia Moslander, Salt Lake City, Utah*

35 HYPOSPADIAS—ONE STAGE REPAIR
37 HYPOSPADIAS—TWO STAGE REPAIR — *Thomas Ray Broadbent, MD and Robert M. Woolf, MD, Salt Lake City, Utah*

Organization

45 COLORADO

45 MONTANA

Features

40 WHAT'S THE RHYTHM? — *Prepared by Alan E. Lindsay, Salt Lake City, Utah*

41 MATERNAL MORTALITY—COAGULOPATHIES

44 BOOK CORNER

45 MEDICAL SCHOOL NOTES

48 MEETINGS

53 OBITUARIES

58 WANT ADS

59 INDEX TO ADVERTISERS

OUR COVER PHOTO

UTAH:—Quiet Skiing on Beaver Mountain. Photo by Ted B. Bernhisel, M.D.

EDITORIAL BOARD

Colorado: Douglas W. Macomber, M.D., Scientific Editor, 1800 High St., Denver (Chairman of the Board); Carl H. McLauthlin, M.D., Assistant Scientific Editor, 510 Republic Bldg., Denver.

Montana: Gerald A. Diettert, M.D., Scientific Editor, 501 W. Broadway, P. O. Box 1307, Missoula, Montana 59801; L. Russell Hegland, Associate Editor, 1236 North 28th Street, Billings.

Nevada: Harry J. McKinnon, M.D., Scientific Editor, 3196 Maryland Pkwy. S., Las Vegas; Wesley W. Hall, M.D., Assistant Scientific Editor, 607 N. Arlington Ave., Reno; Nelson B. Neff, Associate Editor, 3660 Baker Lane, Reno.

New Mexico: Marcus J. Smith, M.D., Scientific Editor, Coronado Bldg., Santa Fe; William S. Curran, M.D., Assistant Scientific Editor, 920 Stanford NE, Albuquerque; Ralph R. Marshall, Associate Editor, 3010 Monte Vista Blvd., NE, Albuquerque.

Utah: Alan E. Lindsay, M.D., Scientific Editor, 699 East South Temple, Salt Lake City; Hoy W. Brewster, Associate Editor, 42 South Fifth East Street, Salt Lake City.

Wyoming: Francis A. Barrett, M.D., Scientific Editor, 1616 E. 19th St., Cheyenne; Robert Smith, Associate Editor, P. O. Box 1387, Cheyenne.

Donald G. Derry, Managing Editor

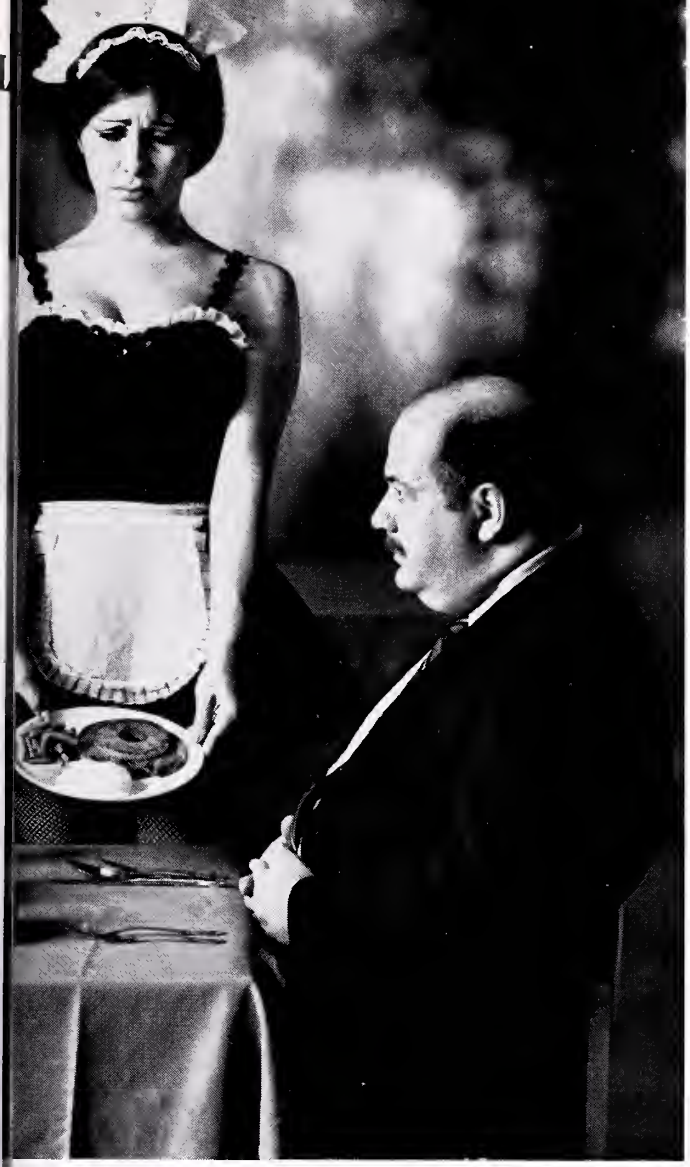
Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations: It is the Official Journal of the Rocky Mountain Medical Conference and those medical societies who are represented on the Editorial Board listed above.

Advertising: National representative: State Journals West, 693 Sutter Street, San Francisco, California 94102.

Subscription: $7.00 per year in advance, postpaid in the United States and its possessions; single copy 60c plus postage. Subscription is included in medical society dues of sponsoring state medical organizations.

Copyright: This Journal is copyright, 1971, by the Colorado Medical Society. Requests for permission to reproduce anything from the columns of this Journal should be addressed to the Journal Office.

Second class postage paid at Denver, Colorado



Picture of low back pain

treated with Parafon Forte® TABLETS

Paraflex® (chlorzoxazone)* 250 mg.
Tylenol® (acetaminophen) 300 mg.

arafon Forte tablets help to relieve pain, store mobility . . . stop pain-spasm feedback

ere is why. PARAFON FORTE provides:

nonsalicylate analgesic equal to aspirin for relief of in,[1,2] yet unlikely to cause the gastric irritation[2,3] or in-eased bleeding time[4] associated with aspirin therapy.

d a skeletal muscle relaxant shown in extensive clinical udies to be useful in a variety of low back disorders[5-7] but which is not an antihistamine or tranquilizer deriv-ive and is unlikely to produce a tranquilizing or seda-ve effect.[8]

rescribe PARAFON FORTE for effective spasmolysis and nalgesia in acute sprains, strains and myalgias of the wer back, including acute exacerbations of chronic con-tions. Your patients will appreciate the restored comfort nd freedom of movement it usually provides.

NEIL LABORATORIES, INC., FT. WASHINGTON, PA. 19034

McNEIL

Contraindications: Sensitivity to either component. ***Warnings:*** *Usage in Pregnancy*—Use in woman of child-bearing potential only when potential benefits outweigh possible risks. ***Precautions:*** Exercise caution in patients with known allergies or history of drug allergies. If a sensitivity reaction or signs or symptoms suggestive of liver dysfunction are observed, the drug should be stopped. ***Adverse Reactions:*** Occasionally, drowsiness, dizziness, lightheadedness, malaise, overstimulation or gastrointestinal disturbances may be noted; rarely, allergic-type skin rashes, petechiae, ecchymoses, angioneurotic edema or anaphylactic reactions. In rare instances, *Paraflex* (chlorzoxazone) may possibly have been associated with gastrointestinal bleeding. While *Paraflex* (chlorzoxazone) and chlorzoxazone-containing products have been suspected as being the cause of hepatic toxicity in approximately eighteen patients, it was not possible to state that the dysfunction was or was not drug induced. ***Usual Adult Dosage:*** Two tablets q.i.d. ***Supplied:*** Scored, light green tablets, imprinted "McNEIL" —bottles of 100.

References: **1.** Batterman, R. C., and Grossman, A. J.: Fed. Proc. *14*:316, 1955. **2.** Goodman, L. S., and Gilman, A., ed.: The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970. **3.** Vickers, F. N.: Gastroint. Endosc. *14*:94, 1967. **4.** Mielke, C. H., Jr., and Britten, A. F. H.: New Engl. J. Med. *282*:1270, 1970 (Corresp.). **5.** Kestler, O. C., and Gyurik, J.: Industr. Med. Surg. *21*:372, 1962. **6.** Forster, S., et al.: Amer. J. Orthop. *2*:285, 1960. **7.** Data on file, McNeil Laboratories, Inc. **8.** Friend, D. G.: Clin. Pharmacol. Ther. *5*:871, 1964.

*U.S. PATENT NO. 2,895,877

"For all the happiness mankind can gain
It is not in pleasure,
but in rest from pain."

John Dryden

Give your patients rest from pain

Empirin® Compound with Codeine Phosphate gr. 1/2, No. 3

Each tablet contains: Codeine Phosphate gr. ½ (Warning—May be habit forming), Phenacetin gr. 2½, Aspirin gr. 3½, Caffeine gr. ½.

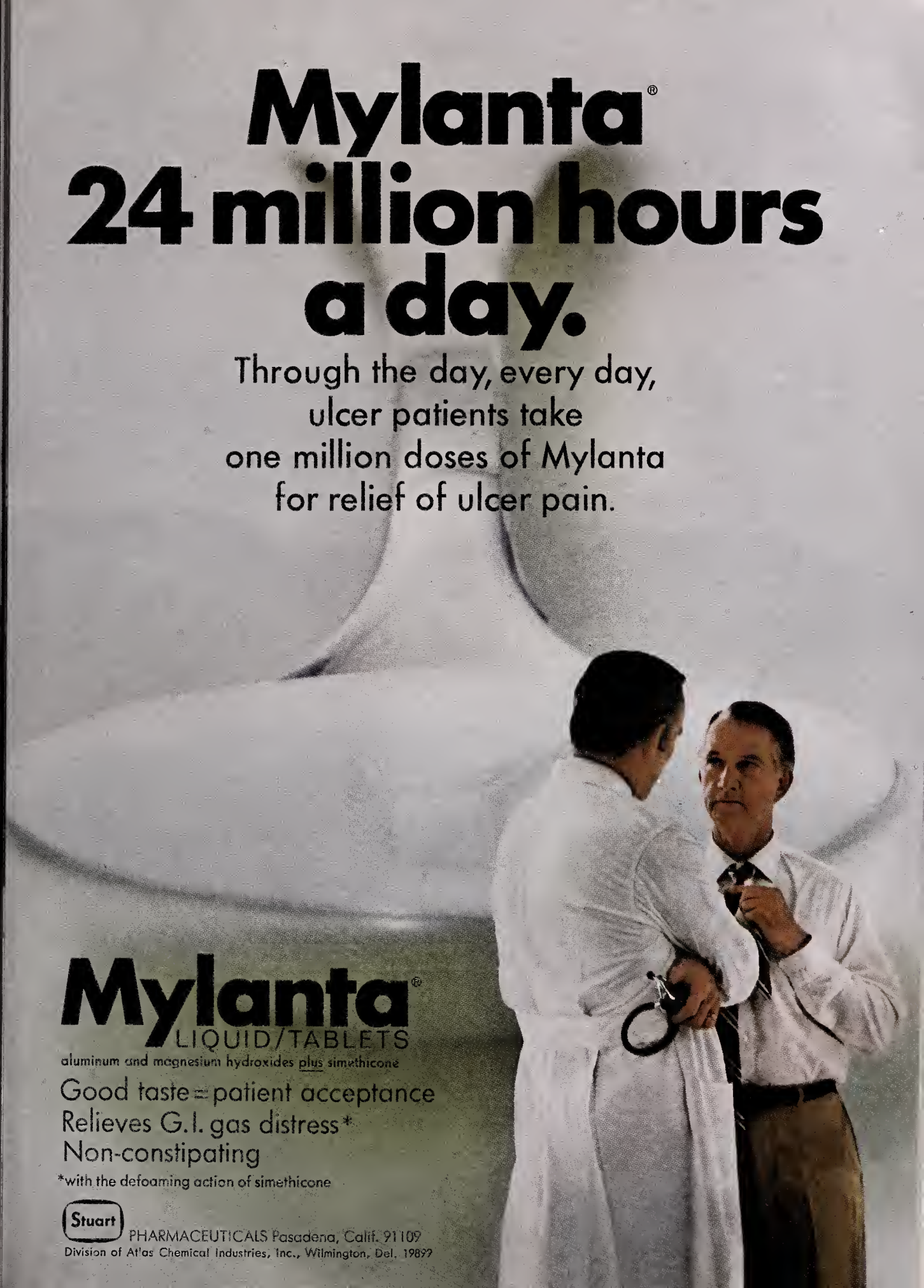
B. W. & Co. narcotic products are Class "B", and as such are available on oral prescription, where State law permits.

Complete literature available on request from Professional Services Dept. PML.

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.

Mylanta®
24 million hours a day.

Through the day, every day,
ulcer patients take
one million doses of Mylanta
for relief of ulcer pain.



Mylanta®
LIQUID/TABLETS
aluminum and magnesium hydroxides plus simethicone

Good taste = patient acceptance
Relieves G.I. gas distress*
Non-constipating

*with the defoaming action of simethicone

Stuart PHARMACEUTICALS Pasadena, Calif. 91109
Division of Atlas Chemical Industries, Inc., Wilmington, Del. 19899

Efudex®

(fluorouracil)
cream/solution

In the treatment of solar/actinic keratoses—

An alternative to cold, fire and steel

2/23/68
Before treatment with 5% 5-FU cream. Patient R. G., 78 years old, shows extensive skin changes due to weathering and severe solar/actinic keratoses.

3/26/68
Following one month of therapy. Intense erythematous reaction is seen at sites of keratoses. Normal skin has not reacted. Some areas which had reacted initially have undergone healing despite continued topical application of 5% 5-FU.

6/11/68
Ten weeks after discontinuance of therapy. All areas have healed completely. Residual mild erythema remains in some areas. This patient also had seborrheic keratoses which, as expected, have not reacted. There is no evidence of residual lesions or recurrences.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

An alternative to conventional therapy

Efudex (fluorouracil) offers the physician a topical alternative to cryosurgery, electrodesiccation and cold-knife surgery in the treatment of solar/actinic keratoses. It is effective, comparatively inexpensive and especially well suited for treatment of these multiple lesions. Important, too, is the highly desirable cosmetic result. Clinical experience demonstrates that treatment with Efudex results in an extremely low incidence of scarring.*

Highly effective

In clinical trials, depending on the dosage form and strength used, complete involution occurred in 77 to 88 per cent of lesions following treatment. The rate of recurrence was low, ranging from 1.7 to 5.6 per cent up to a year after completion of therapy. When new lesions appeared, repeated courses of Efudex therapy proved effective.*

Predictable therapeutic response

Two to four weeks constitutes a typical course of Efudex therapy. The response is usually characteristic and predictable. After three or four days of treatment, erythema begins to appear in the area of keratoses. This is followed by an intense inflammatory response, scaling and occasionally moderate tenderness or pain. The height of the inflammatory reaction generally occurs two weeks after the start of therapy, and then begins to subside as treatment is stopped. Within two weeks of discontinuing medication, the inflammation is usually gone. A mild erythema may remain for two or three months before gradually receding. Since this response is so predictable, lesions which do not respond should be biopsied.

Two strengths—two dosage forms

Efudex is available as a 2% or 5% solution or as a 5% cream. It is applied twice daily by the patient with a nonmetal applicator or suitable glove.

Before prescribing Efudex, however, two important considerations: First, please consult the complete prescribing information for precautions, warnings and adverse reactions. Second, advise the patient that treated lesions should respond with the characteristic but transient inflammation. A positive sign that Efudex is working for them.

*Data on file, Hoffmann - La Roche Inc., Nutley, New Jersey.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Efudex Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)-aminomethane, hydroxy propyl cellulose, parabens (methyl and propyl) and disodium edetate.

Efudex Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing-cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

new
Efudex®
(fluorouracil)
cream/solution

Not too little, not too much... but just right!

"Just right" amounts of Ilosone Liquid 250 can be dispensed easily from the pint bottle in *any* quantity you specify to meet your patients' precise needs—without regard to package size.

ready-mixed

Ilosone® Liquid 250

Erythromycin Estolate

(equivalent to 250 mg. of base per 5-ml. teaspoonful)

Additional information available to the profession on request.
Eli Lilly and Company
Indianapolis, Indiana 46206

Lilly

100204

Sovereigns and Servants

From time to time, it is well for us to pause and review our relationship with the patients whose health and lives are in our care. Occasionally, when we sense the responsibility that goes along with our knowledge and skills, we may have a tendency to make decisions that are not ours to make. In reality, a doctor is a teacher, and his job is to assess honestly the nature of the problem posed by his patient and then to teach that individual what the natural course of that problem is likely to be. Then, it is his duty to teach the patient what medical science has to offer, including the limitations and the risks of the modalities available to modify that natural course.

In the final sense, however, the sovereignty of the soul rests with that individual, and the physician is the servant in rendering assistance to that individual to accomplish his goals. The decision must be made by the patient, or the responsible relatives acting in behalf of the patient. Whenever a physician presumes to serve as sovereign and make decisions that are not those for a servant to make, this important balance may be destroyed.

When a referral to a specialist is contemplated, for example, the patient will be complimented and the relationship between all parties will be more secure if the referring physician has honored the sovereignty of the patient by asking him if there is a preference among various consultants all deemed by the referring physician to be competent. When such decisions must be made, it is not for the physician to impose his personal preference, or even prejudice, upon the will of the one whom he would serve.

The latter example is straight-forward and relatively easy among the spectrum of decisions that must be made. More difficult decisions often are required, such as the possibility of surgery at great risk. For example, an eighty-year-old patient with cancer of the colon, or a patient in congestive heart failure due to an aneurysm of the left ventricle following myocardial infarction, may carry a serious or even grave prognosis if the natural history of the condition is allowed to run its course. The alternative of surgical intervention may offer the patient a chance at palliation. It would be tempting, therefore, for the physician and the surgeon to make the decision for an operation to be performed. Yet, the higher the risks involved in any decision, the weightier are the responsibilities for the decision. In these instances, especially, it is important for the physicians in attendance to assess, as accurately as they can, what the outcome is likely to be without such surgical intervention and then to estimate the risks and limitations attendant with the procedure under consideration. Particularly, the spouse and children of the patient should be informed in great detail and asked to share in the responsibility of the decision with the patient. In the decision-making process, the family certainly has a right to ask the physician what he would do, with his insight and knowledge, were he the patient or the husband of the patient. In that frame of reference, the physician certainly can, and should, respond with the expression of his views. This could then serve as an important part of the input to the patient and the family and their ultimate right of the final process of decision.

The great physician is a servant, solicitous to the needs of those whom he serves, bearing in mind that the sovereignty of the individual soul must be supreme.

Russell M. Nelson, MD
President,
Utah State Medical Association

267063
AUG 14 1973

Tribute to Hilmon Castle, MD

POSTGRADUATE EDUCATION of physicians, like the weather, is often talked about but only too infrequently is much done about either. Therefore, it has been particularly refreshing in the past few years to see in the Intermountain Region the emergence of a truly constructive and broadly effective program for physician education.

Conceived in 1966, the Intermountain Regional Medical Program (IRMP) was born in 1967 under a cloud of physician misapprehension and skepticism engendered by the startling and alarming recommendations of the DeBakey Commission which suggested patient care programs which would compete with private practice. Wisely emphasizing the educational aspects of the more restrained public law #89-239 which followed, the IRMP initiated a number of broad-based educational programs for physicians, nurses, and para-medical personnel in the fields of heart disease, cancer, and stroke. There are probably few physicians in the region who have not profited directly or indirectly from these programs. The resultant improvement in patient care cannot be adequately measured, but it is hard to believe that it has not been considerable.

The current IRMP projects are indeed impressive and far-reaching. A description of the CPR training program, an early IRMP project, is presented by Dr. Joyce Johnson in the Utah issue of the *Rocky Mountain Medical Journal*. Those of us who have participated in the many coronary care training programs for physicians held throughout the region since 1958 are convinced that the level of competence in treating acute cardiac cases has increased significantly because of these programs.

A tribute to the IRMP is in essence a direct compliment to its founder and coordinator, Dr. C. Hilmon Castle, whose imagination, administrative skill, and sensitive understanding of physician's learning needs have made the IRMP the model program in the United States. Such a tribute to Dr. Castle, an expression of thanks for a job well done, is particularly appropriate at this time as he will soon leave the IRMP to head the newly created Department of Community and Family Medicine at the University of Utah College of Medicine.

We wish him well in his new venture and predict that his new endeavors will gain the same type of national recognition and admiration that the IRMP already has.

A. E. Lindsay, M.D.

PICKER Medical Products

3890 ELM STREET — TEL. 388-5731 — DENVER, COLORADO 80207

Offices also in:
Colorado Springs, Colorado
2236 Glenwood Circle, 635-8768

Salt Lake City, Utah
21 Kensington Street, 487-7519

Albuquerque, New Mexico
113 Sierra Dr., S.E., 255-1288

Medical X-Ray Equipment
Accessories & Film
Nuclear Equipment

Cardiopulmonary resuscitation training

A plan for providing it in a large geographic region

Joyce Johnson, MD,* and C. Hilmon Castle, MD,†
Salt Lake City, Utah

THE DEVELOPMENT of external cardiac compression in 1961 made the resuscitation of patients with sudden and unexpected cardiac arrest a practical possibility. However, despite the development of effective cardiopulmonary resuscitation (CPR) technics, in 1967 only seven of the 126 community hospitals in the Intermountain Region had started cardiopulmonary resuscitation training programs for their personnel. Moreover, only a few hundred health professionals had engaged in any types of formal training programs or had demonstrated their competence in cardiopulmonary resuscitation.

In 1968, after utilizing the resources of the Intermountain Regional Medical Program (IRMP) to promote CPR training, a survey revealed that 84 of the 126 hospitals had begun training programs for their personnel and had developed plans of action for sudden cardiac arrest situations. The methods used to promote CPR training and to encourage hospital participation throughout the Intermountain Region comprise the basis for this report.

Background

In November, 1968, since both the Utah Heart Association (UHA) and the IRMP were interested in CPR training for doctors, nurses, rescue workers, and other allied health personnel, and also because each organization had unique resources to offer, a concerted effort was established and a program developed which would encompass the entire Region. The CPR Committee of the Utah Heart Association, consisting of six physicians, two nurses, and one rescue worker, agreed to serve on a voluntary basis as a planning committee for the project while the IRMP supplied communication systems, administrative services, financial assistance, and a part-time consultant skilled in CPR training. The effort initially begun in Utah by the Heart Association was thus transformed into a regional program involving hospitals located throughout the Intermountain West.

It became clear early in project planning that responsibility for training and organization should be placed at the community hospital level. It would be the role of the IRMP and the UHA to assist each community hospital in meeting this responsibility by (1) providing instructor's training for a doctor and nurse team from each hospital, (2) by providing instructors with teaching aids, movies, slides, and printed materials necessary for carrying out their own training activities, (3) by providing a well-publicized CPR training session in each local community when the community instructor felt that such a session was needed to stimulate interest in CPR in his community, (4) by providing instructors with technical consultation when needed, (5) by providing local instructors with new information on CPR, and (6) by providing them with feedback concerning CPR activities elsewhere in the Intermountain Region.

*Dr. Johnson is Medical Director of Coronary Care and Computer Monitoring, Latter-day Saints Hospital, Salt Lake City, Utah and a member of the American Heart Association CPR Committee. †Dr. Castle is Professor and Chairman of the Department of Community and Family Medicine, and Associate Professor of Medicine, University of Utah Medical Center, and Coordinator, Intermountain Regional Medical Program, Salt Lake City, Utah.

Methods

Letters were sent to the Chief of Staff and Director of Nursing of each hospital asking them to identify a doctor and nurse who were willing to attend an instructor's course, and who would commit themselves to teach CPR in the community hospital when they returned. After such teams of doctors and nurses were identified, they were invited to attend an Instructor Training Course in Salt Lake City. The invitations outlined the extent of commitment expected of prospective instructors and how the IRMP was prepared to help instructors follow through with CPR activities in their hospitals. To insure that interest and commitment were genuine, the participants were asked to pay their own expenses or ask for help from the hospital.

A one and one-half day Instructor's Training Course was held in Salt Lake City. Enrollment was limited to 40 persons, with priority given to doctor and nurse pairs from the same hospital. The course was designed to give the participants a basic understanding of resuscitation principles, to develop their skill in performing CPR technics, to provide familiarity with equipment needs and necessary hospital organization, and to demonstrate basic technics on the effective teaching of CPR to others. In order to insure a high standard of training, visiting faculty members of the American Heart Association's committee on CPR served as instructors for the course.

The number of participants was limited in order to gain active communication and exchange of information among faculty and participants, and to allow opportunity for consideration of individual problems. An informal dinner meeting was held between the first and second day of the course in order to give the faculty an opportunity to become personally acquainted with the instructor-participants and to find out how the IRMP might assist them with promotion of CPR training in their own communities.

Following the course, printed materials and teaching aids were available, on loan, to new instructors. In addition, participants were assured that if they needed help in stimulating community interest in CPR technics or in purchasing equipment, a CPR team from Salt Lake City would be available to conduct a cardiopulmonary resuscitation program in their community hospitals.

When such requests were made by these new instructors, CPR teaching teams were sent to community hospitals. The team consisted of at least one doctor, nurse, electronics technologists, and administrator. The program was designed to provide knowledge about resuscitation and to allow participants to practice on both manikins and anesthetized dogs. In addition, each program was designed to meet the needs, or cope with the individual problems, of that particular hospital. Programs were not conducted in a community hospital unless there was someone in that hospital who had either attended an instructor course or had already started a training program on his own. By the end of the first year, dentists were also included in the physician's program; and a rescue worker's program was given simultaneously in another area of the hospital.

Instructor Evaluation

One of the project's major goals was to insure a high quality of training for both instructors and those whom they would train. Evaluation of each instructor's performance was carried out in the following manner:

A written test designed by the CPR Committee to include those CPR principles which were considered most important to a basic understanding of the subject was given both before and after training. Questions were added to the post-training test to obtain the opinions of each instructor as to how well he felt his personal needs had been satisfied by the course. Each instructor was also asked which aspects of resuscitation and instructor training he considered to be adequately covered, which were inadequately covered, and what suggestions he could offer regarding additions to the curriculum.

The tests, participant evaluations, and committee members' evaluations were used to modify the next course agenda. Significant improvements were made in successive courses by this approach. It was found, however, that the written test was not giving a true measure of an instructor's abilities since some persons who were obviously inadequately prepared as instructors sometimes

had test scores comparable to those who were known to be very good instructors.

It was, therefore, decided that methods must be developed which would give a more complete and objective evaluation of the instructor's knowledge and skill of CPR technics, and at the same time indicate his competence as a teacher. Considerable time was thus devoted to developing new evaluation methods for use during the first instructor's retraining course which was held at the end of the first year. It was hoped that, if these evaluation methods proved worthwhile, they could then be utilized by instructors in their individual community hospitals to test and train their own personnel in CPR.

The methods which were developed for evaluating the instructor's knowledge, understanding, and practical skills are as follows:

The factual knowledge test consisted of questions which dealt with specific CPR principles and empirical data and was given both as a pre-test and post-test. The post-test answer sheet was designed in erasure form to give immediate feedback of the correct answers. A judgment test, called Critical Interventions, presented the instructors with specific problem situations and asked them to select the preferred course of action. Pre- and post-testing was accomplished with a post-test answer sheet designed to give immediate feedback.

Each instructor was asked to perform mouth-to-mouth breathing and external cardiac compression for a given period of time, first alone and then with another resuscitator. Performance was evaluated:

1. By actual measurement of massage pressure and ventilation volume using a strain gauge, oscilloscope, and recorder;

2. By the grading of two independent, well-trained observers using specially prepared charts; and

3. By recording on TV tape the performance of each instructor for self-confrontation later on and for critique by the visiting faculty.

Defibrillation ability was tested by asking instructors to set the defibrillator, massage an anesthetized dog 15 times, and then to defibrillate the dog. A record of time and technic was made. The participants' ability to judge the performance of other resuscitators was tested by asking them to observe a TV tape of five individuals performing CPR. Each performer had been programmed to committee certain errors in technics so that the instructors would be exposed to a variety of mistakes. The participants were given 30 seconds to view the resuscitators and 30 seconds to record their observations on a specially prepared answer sheet.

The participants' ability to synthesize their knowledge of the definitive phase of treatment and to apply it to problem situations was examined by dividing the larger group of 30 or more into four small groups. Each group was given a problem situation and five minutes to make decisions regarding (1) interpretation of the ECG's, (2) courses of possible therapy, (3) which course of therapy was best, and (4) why. The large group was then reassembled and each group leader was asked to present his group's problem and solutions. The visiting and local faculty were utilized as consultants.

As a result of this testing and problem solving, we were assured that the quality of our instructors' understanding and capabilities was at a high level. We learned, in addition, the strengths and inadequacies of our teaching and testing methods.

Results

In one year, three physician-nurse instructor courses, one physician-nurse instructor retraining course, and two rescue worker instructor courses were held. Through these six courses, 103 nurses, 86 physicians and dentists, and 74 rescue workers were trained. The average total cost per course was $2,000. One hundred and twenty-five equipment and training aid loans were made. The equipment purchased initially by the IRMP for loan to hospitals consisted of six resusci-annes, two resusci-babies, and eight movies and CPR literature at a total cost of $3,350. As the program expanded, another $8,000 was spent on additional equipment and teaching aids.

In the programs conducted in communities outside of Salt Lake City by IRMP-trained instructors, 9,733 persons received training. Because training aids were placed on permanent loan in two areas—Pocatello,

TABLE 1

TYPE OF PROGRAM	Program No.	Total Trained	M.D. D.D.S.	R.N.	Rescue Workers
Instructor Courses:					
Physician-Nurse	3	189	86	103	—
Physician-Nurse Retrainer	1	38	18	20	—
Rescue Worker	2	74	—	—	74
Total	6	201	104	123	74
Community CPR Program by IRMP Faculty	41	1,904	543	967	39
Community CPR Program by IRMP Trained Instructors	218	9,733	—	—	—
TOTALS	265	11,838	647	1,090	113

Idaho and Reno, Nevada—and because several programs were given which were not reported, many more persons received training than is indicated in the above figure.

In addition, 41 IRMP team programs were presented in communities and, thus, an additional 543 physicians and dentists, 967 nurses, and 39 rescue workers received CPR training. The average cost of these programs was $421 per program. In summary, 201 persons were trained in instructors' courses in Salt Lake City, 1,904 medical personnel received CPR training in communities by IRMP faculty; and 9,733 plus were trained in follow-up programs conducted by local IRMP-trained instructors. A total of 11,838 persons consequently received CPR training through all of the programs sponsored by the IRMP pilot project (Table 1).

Evaluation of Results

The large number of health professionals who received CPR training in the first year emphasizes the value of creating a pyramid-type system for training. Although the most meaningful evaluation of the CPR project would be the actual number of lives saved as a result of IRMP-CPR training, this information is difficult to obtain and has yet to be obtained. However, a typical example of the unsolicited reports received from instructors thus far about lives saved is one from a Nevada instructor, a physician, in a small community hospital who had access to an AC defibrillator for seven years but had not seen it used and did not know how to use it himself. Within two weeks after he attended a CPR Instructor's Course, and became familiar with the equipment through the defibrillation practice sessions, he successfully defibrillated an accident victim who otherwise would have died. Because of his interest and experience, community service organizations have now gathered funds to purchase the latest electronic DC defibrillating equipment for his hospital. Many examples of similar results have been reported by IRMP-trained personnel in hospitals throughout the Region.

Conclusion

1. The Intermountain Regional Medical Program, working in cooperation with existing agencies, has effectively accelerated Cardiopulmonary Resuscitation Training among the community hospitals serving the Intermountain Region.

2. When both a doctor and a nurse from the same hospital are given instructor's training simultaneously, and are also given the follow-up help they need in the form of teaching aids and consultative services, much CPR training and organization can be accomplished at the community hospital level in a very short time.

3. Well-planned testing and evaluation technics are essential parts of any training program because they provide objective measures of the capabilities of those trained, as well as feedback for effective reinforcement. Moreover, they result in program improvement and heighten interest among participants. Testing and evaluation technics that are well planned can also identify for the instructor those training principles considered

to be most important, and can serve as a self-evaluation guide for him.

4. Presenting CPR programs in community hospitals accomplished the following:

a. Helped the local instructor to begin an active CPR Program in his community, and identified him as a trained resource person for local CPR activities.

b. Helped smaller communities to realize the effectiveness of cooperative expenditure of federal funds.

c. Helped the medical school and the urban physician and nurse to gain a better understanding of the problems experienced by the rural physician, nurse, and hospital.

d. As a result of using physicians and nurses from one location to travel to a nearby state or community to teach CPR, a unifying effect has occurred within the Region and some lines of communication between physicians have been opened which formerly did not exist. Medical personnel have begun to relate more to their counterparts in other areas and have become more aware of the variety of medical programs available to them.

e. The CPR Project has served as a door opener for other IRMP activities. Since this project has shown immediate beneficial results in a number of cases, many physicians and nurses who were formerly adverse to any federal programs in the medical field now support IRMP activities and are attending other seminars, workshops, and clinics because of these favorable impressions.

f. Finally, this project has helped to stimulate a general interest in continuing education among many physicians and nurses and has established rapport for other continuing education programs. •

ACKNOWLEDGMENTS

The authors wish to express sincere appreciation to Mitchell Schorow, M.A. and William M. Wilson, M.A., for their invaluable assistance in the preparation of this paper.

Outlines of programs and test materials are available on request from IRMP, 50 North Medical Drive, Salt Lake City, Utah.

—The lowest priced tetracycline—nystatin combination available—

Newborn intensive care in the intermountain west*

August L. Jung, MD, and Karyn Smith, RN, MS,
Salt Lake City, Utah

There is considerable national concern, in both medical and non-medical circles, that the infant mortality rate in the United States has not changed in recent years and that this rate is unacceptably high. It is high time that some major efforts be made to reduce infant mortality in this country.

In the twenty years since 1950 little or no decline has occurred in infant mortality. The first half of this century saw infant mortality, or deaths in the first year of life, decline from 100 deaths/1000 live births to 25 deaths/1000 live births. Infant deaths in the United States in 1950 were one-fourth of the number of deaths in 1900. Unfortunately, this impressive decline has not continued beyond 1950.

It is important to realize that nearly 75 per cent of deaths in the first year of life occur in the neonatal period (first 28 days of life). By focusing attention on and providing more intense care for the neonate, one can substantially reduce this death toll. Even more distressing than the mortality among neonates is the morbidity with which they must live. Between 4 and 10 per cent of all newborns who live beyond 28 days of life are afflicted with neurologic handicaps such as cerebral palsy, seizures, sensory impairment, mental retardation, major congenital malformations or behavioral disorders. In newborns considered premature (under 2500 grams of weight), morbidity and mortality figures are even more striking than in full-term newborn infants. Premature infants make up approximately 10 per cent of births, and nearly one out of every seven prematures die. Twenty per cent of those who survive are afflicted with handicaps of a severe nature. One major step now being taken nationally to reduce neonatal mortality and morbidity is to establish regional newborn intensive care uits.

Newborn intensive care focuses on the identification of sick newborns and the treatment of these infants in special units. With the recent advances in medical technology and the development of this subspecialty within pediatrics (neonatology), a fresh concept of active intervention in the illness of newborns has arisen. With this new intensive look at sick newborns has come a whole new reservoir of knowledge which has contributed to marked changes in therapeutic approaches available to sick newborns. Death and neurologic handicaps can be significantly reduced. A wait-and-see attitude no longer need be tolerated. Instead, a vigorous program of intensive care can be instituted.

Although the need for newborn intensive care is unanimously accepted, considerable debate concerning the organization of community programs to provide intensive care for newborn infants has arisen. Much of the argument centers around the number and location of facilities to provide this care to a given area. Regional centers for the joint management of high-risk pregnancies and major disorders in the newborn infant appear to be the most logical and efficient solution for this dilemma. A central or referral center

*From the Intermountain Newborn Intensive Care Center, University Medical Center, Salt Lake City, Utah. Karyn Smith is a Perinatal Nurse Specialist.

concept seems a necessity for the management of high-risk pregnancies and high-risk newborn infants from the standpoint of financial investment necessary to equip such a service and the organization of a team of personnel, generally in short supply, including neonatologists, intensive care nurses, subspecialists and paramedical personnel. Even if money was not a major concern, it seems impossible in terms of personnel to maintain services in every hospital offering obstetrical care.

Newborn intensive care centers have been established in Denver, Phoenix, and many west coast cities for a number of years. The intermountain area, made up of Utah, much of Idaho, Nevada, Colorado, Montana and Wyoming did not have an intensive care center until July, 1968, when the Intermountain Newborn Intensive Care Center at the University of Utah Medical Center in Salt Lake City first began operation. In the intermountain area large population centers are separated by great distances. Between these centers lie many rural areas and small communities, which, en mass, account for a large number of area's births, but, individually find the cost of special care units for sick newborns prohibitive.

There are approximately 77,000 births per year in the intermountain area. Nearly two per cent or a total of 1,500 infants require newborn intensive care. Thus, a need for a newborn intensive care center seemed evident.

In Salt Lake City the University Hospital provides a central location for referral of high-risk pregnancies and high-risk newborn infants. The University Hospital was chosen as the site of the Intermountain Newborn Intensive Care Center for two major reasons: (1) the Department of Obstetrics maintains high-risk maternal and delivery services, and (2) the Department of Pediatrics has recently expanded to include a specialist in neonatology, pediatric subspecialists, newborn nursery facilities for intensive care, available intensive care nurses, broad laboratory facilities and the availability of special services such as pediatric surgery, ophthalmology, anesthesiology, fetal monitoring and respiratory care. The University location of the center allows for teaching opportunities in the medical school and College of Nursing and also for the availability of postgraduate programs for the area's practicing physicians.

Types of Disorders Cared For

A wide variety of disorders are responsible for illnesses in newborns. Identification of babies at risk begins in the fetal period, or after birth when actual symptoms of disease appear. Such signs as apnea, cyanosis, respiratory distress, jaundice, seizures, vomiting, obstipation, anuria, abdominal mass or distension, plethora or pallor are obvious indications of illness. Other more subtle signs are often forerunners of severe illness. These include lethargy, jitteriness, poor feeding, retractions, poor breath sounds, murmurs, regurgitation, oxygen dependency, and deviations from normal growth patterns.

TABLE 1
INDICATIONS FOR INTENSIVE CARE

Respiratory Distress
- Moderate or Severe Hyaline Membrane Disease
- Congenital Malformations of the Lungs
- Cyanosis in 40% Oxygen
- Recurrent Apnea
- Birth Asphyxia
- Impending Respiratory Failure, Any Cause
- Pneumothorax
- Pneumonia

Major Congenital Malformations
- Congenital Cardiac Malformations
- Acute Surgical Emergencies

Birth Trauma
- Intracranial Hemorrhage
- Skull Fractures

Other Major Traumatic Injuries

Infections
- Sepsis
- Meningitis
- Congenital Infections
  (Rubella, CMID, Toxoplasmosis, Syphilis)
- Other Major Infections

Prematurity
- Infants Under 1500 gms.
- Prematures with Major Complicating Factors

Others
- Severe Hyperbilirubinemia
- Severe Erythroblastosis Fetalis
- Hypoglycemia
- Hypocalcemia
- Infants of Diabetic Mothers
- Endocrine Disorders

Diagnostic Dilemmas

Conditions responsible for the majority of neonatal mortality and morbidity are as follows: prematurity, respiratory diseases, infections, congenital malformations, trauma and metabolic disorders. Prematurity and respiratory distress account for nearly 75 per cent of neonatal deaths. Congenital malformations and other conditions are responsible for nearly equal proportions of the remaining 25 per cent. It is with mortality *and morbidity* in mind that the physician should consider the transfer of an infant to the intensive care center.

Obviously, judgment must be made on an individual basis by the physician in attendance. He will have to consider the condition of the baby in relation to local facilities. It is well to consider though, particularly in cases of respiratory distress, that maximum benefit is obtained when the infant is transferred early.

Intensive Care Center Staff

One of the major advantages of the intensive care center is the provision of a team of medical, nursing, paramedical and allied health experts in newborn care (see Table 2). A neonatologist directs the overall management of infants in the intensive care center. Other medical personnel include pediatric subspecialists in anesthesia, toxicology, hematology, metabolic disease, neurology, gastroenterology, and radiology. Other specialties contribute to the care of the newborn, such as ophthalmology, otorhinolaryngology, orthopedics, surgery and respiratory diseases. Obstetricians work

TABLE 2

INTERMOUNTAIN NEWBORN INTENSIVE CARE CENTER ORGANIZATIONAL CHART

Intermountain Newborn Intensive Care Center

Medical Staff

Neonatologist

Asst. Director, Pediatric Anesthesiologist

Housestaff

Students

Nursing Staff

Perinatal Nursing Supervisor

Newborn Intensive Care Nurses

Pediatric Subspecialists:

Hematology
Cardiology
Neurology
Infectious Disease
Gastroenterology
Endocrinology
Toxicology
Radiology

Paramedical Staff:

Social Services
Public Health Nursing
Physical Therapy
Inhalation Therapy

Medical Subspecialists:

General Surgery
Thoracic Surgery
Otolaryngology
Ophthalmology
Pulmonary Disease
Orthopedics
Others

Laboratory

Perinatal Laboratory
Micro-chemistry Lab.
Blood Gas Laboratory

Equipment

Fetal Monitoring
NBICU Equipment

Transport Services

Ambulance
Helicopter
Airplane

Physical Facilities

Intensive Care Nursery
Intermediate Care Nursery
Well-baby Nursery
Rooming-in

Follow-up

3 mo.
6 mo.
1 yr.
2 yr.

closely with the neonatologist in identifying the fetus at risk.

The nursing care is managed by a staff of registered nurses, most of whom have special preparation in newborn intensive care. The intensive care nurse is expected to constantly monitor the condition of each baby and to report the first sign of problems to the unit physician. In addition, she must initiate emergency procedures when indicated, such as bag and mask resuscitation. She also provides continuous physical care of the infant and the necessary social stimulation. Personal touches are often seen (i.e., mobiles made from colored nipples, stuffed toys in isolettes, and each baby called by his given name). The nurse also provides information and invaluable support to parents who are coping with an often overwhelming situation.

Like other intensive care centers where emergencies are always imminent, constant observation is *always* necessary and human emotions are always an operant factor, the stress for the nurse must be considered and alleviated where possible. The patient-staff ratio is maintained at 4:1 or less whenever possible. A rotational plan where intensive care nurses can be placed in the well-baby nursery and/or postpartum unit for varying time periods is being developed. An extensive in-service education program to upgrade skills and knowledge is on-going.

Referrals are made to public health agencies throughout the intermountain area to ensure continued nursing follow-up after babies are discharged.

Paramedical personnel include inhalation therapists and laboratory technicians capable of assay of blood gases. Social workers, administrative personnel and technical assistants are included in the intensive care team.

House staff, residents, interns, medical students and nursing students contribute to the care of the sick newborn. Here they have an opportunity to develop skills and knowledge in actual practice.

A vital part of the team effort is the utilization of parents in the care program. Visiting times are flexible; touching, holding or actual physical care is encouraged. Parents are consulted about decisions relative to management and often await the latest laboratory results (such as blood gases) as eagerly as the medical staff.

Physical Facilities

Adequate work space is the most essential consideration. The area is open with 100 foot-candles of light over each isolette to provide good surveillance. Each isolette station serves as its own monitoring center; therefore, personnel observe monitors and baby simultaneously. Proper grounding and shielding must be maintained to reduce electrical hazards. Work areas are provided by a continuous shelf at isolette bed level around the room. Under the shelf at each station are wall-mounted oxygen outlets (4), air outlet, electrical outlets (10) and a vacuum outlet. At present the facility provides eight intensive care beds and five "graduate care" beds. Plans for expansion are being considered.

Equipment

The electronic equipment currently in use aids the medical and nursing staff in constantly observing and assisting the ill infant. Respirators designed for newborn infants deliver small tidal volumes at rapid respiratory rates, have high and low pressure alarms, provide ultrasonic mist, provide small dead space, and also provides oxygen airmixing and analyzing devices. Oscilloscopes display heart rate, electrocardiograms and blood pressure. Monitors display temperature, respiratory rate, heart rate and inspired oxygen

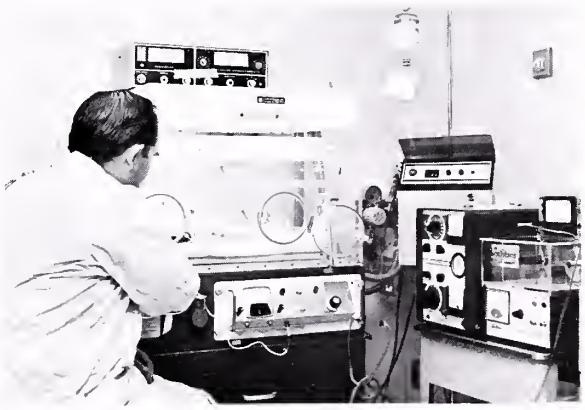


Fig. 1. An example of some of the complexities involved in newborn intensive care. Illustrated left to right are cardiorespiratory monitor, photo therapy lamps, IV infusion pump, newborn respirator, oxygen analyzer and controller and temperature monitor. The infant is housed in an intensive care isolette.

concentrations. Alarms alert nursing personnel when deviations from established limits occur. Infusion pumps deliver preset minute volumes of parenteral fluids. Phototherapy lamps reduce toxic levels of bilirubin. Isolettes provide ready access to the infant, servo-controlled heating mechanism, oxygen control, humidity and protection from infection. Additional warming devices can be used when the infant is exposed for procedures. Resuscitation equipment and incidentials are kept close at hand in mobile carts. New equipment and modifications of existing equipment are under continual evaluation.

Procedures

It has been demonstrated that many procedures previously thought impossible in newborns can be successfully accomplished. These include cardiac catheterization, umbilical arterial catheterization, respirator therapy, pulmonary physiotherapy, bronchial suctioning, blood gas monitoring, thoracotomy and exchange transfusions.

Twenty-Four-Hour-a-Day Transport System

Preparation for transport begins with a call to the intensive care center by the referring physician. The case is discussed with the unit physician on call. The referring physician should obtain the following once the decision for transport is made: (1) copies of hospital records, (2) written parental consent, (3) written order for transfer, (4) x-rays and laboratory data, and (5) a tube of the mother's blood. The intensive care center physician makes the transport arrangements and notifies the referring physician when arrangements are complete. They also notify the appropriate transport service (ambulance up to 40-50 miles from Salt Lake City, helicopter for 50-150 miles and airplane for 150-400 miles) and accompanies the vehicle to the referral hospital. At the referral hospital the unit physician examines the baby, reviews records and x-rays, performs any necessary procedures, and notifies the intensive care center that transfer is beginning and what preparations are needed in the center for the baby's arrival.

Fig. 2. Intensive care physician and nurse on final phase of air transport of a critically ill infant.

A self-contained portable isolette on a mobile removable stand is used to transport the infant. Transparent plexiglas allows observation and portholes provide access to the infant. Oxygen and humidity can be provided. Heat and light come from battery power or a 12-volt automobile or airplane circuit.

Vital signs and oxygen concentrations can be monitored with battery operated equipment. Resuscitation equipment is readily available.

Air transport poses some special problems; higher elevations can produce cyanosis and gastric distension while the noise obscures breath sounds and heart beat. Greater amounts of oxygen and a nasogastric tube placed in the stomach circumvent the altitude problem and an esophageal stethoscope and electronic monitoring equipment solve the noise problem.

Future Plans

It has become apparent that it is not sufficient to provide intensive care to only the newborn. Often distress can be identified in the fetal period or be predicted from the course of the interconceptional period. the pregnancy itself or the labor and delivery. Mothers can be classified in terms of potential risk for themselves and their babies. Plans are being formulated to implement this perinatal approach in the program at the University of Utah Medical Center. Features of the program include high-risk pregnancy clinics, fetal monitoring during labor and delivery, computerized high-risk index, intensive care services, perinatal laboratory and follow-up for both mother and baby.

Summary

Newborn intensive care is a new and needed service now available to the physicians of the intermountain area. It focuses on offering intensive care to any ill newborn. The basic approach is concentration of sick infants in one center with care provided by a team of medical and nursing specialists. Extensive use is made of paramedical personnel, procedures and equipment to assist in the care. A transport system has been developed which brings the unit physician to the referral hospital and allows intensive care to begin en route to the intensive care center. The continued growth and success of the center is dependent on the referral of babies from throughout the intermountain area. The expansion of a perinatal unit in the medical center should go even further toward solving the problem of high infant mortality rates.

We wish to thank the Utah State Division of Health for their cooperation in development of this unit. •

Medical memorabilia . . . Utah's first medical school

W. K. Fitzpatrick, MD, Salt Lake City, Utah

THE FRONTIER DOCTOR played a character role in the lusty history of the West. Spurning the hardships of the pioneer life, the "college graduate" type physician tended to stay close to the urban East, leaving the settlers to fend for themselves. The doctors among them were part-time healers and midwives who raised their own crops and practiced medicine as an avocation, or were traveling medicine men, of dubious reputation at best, who made their living from selling their tonics and leaving town as quickly as possible.

During the middle of the nineteenth century, medicine was struggling to achieve a scientific base. In 1849 Addison described pernicious anemia and hypoplasia of the adrenal glands. Pasteur discovered anaerobic bacteria in 1861, leading to the introduction of antiseptic surgery by Lister in 1867. Utah was settled in 1847, the same year that the American Medical Association was founded. In 1877 Brigham Young, President of the Church of Jesus Christ of Latter Day Saints and leader of the Mormons into Utah, died of what was later recognized as appendicitis, nine years before it was described by Fitz in 1886. Before his death, however, he recognized the need for full-time doctors in Utah, and the Mormon Church called many of its members to go east for a medical education. Most of the early doctors of Utah had been members of a cult of medicine called Thompsonians, followers of a system of medicine formulated by a Dr. Samuel Thompson based on an emetic extract of the herb Lobelia. Some of these physicians attained high station in the church, including Frederick Williams, one of Joseph Smith's counsellors, and the Richards brothers, Levi and Willard.

It is not surprising then that in 1880 Dr. Frederick S. Kohler was able to convince the people of Morgan, Utah, that a medical college was needed and that Morgan was an ideal place for it. Dr. Kohler was born in 1836, in Milroy, Mifflin county, Pennsylvania. He attended public schools and then spent a year or two at Dartmouth College. In 1860 he was graduated with an M.D. degree from the Eclectic Medical College of Pennsylvania at Philadelphia. He was commissioned as an Assistant Surgeon in the Twenty-first Regiment of the Pennsylvania Cavalry in which he served during the Civil War. After the war he returned to Reedsville, Pennsylvania, where he practiced for twelve years.

In 1872 he took another course in medicine at the Medical College of Ohio in Cincinnati, being graduated in 1873. He then practiced in Mount Sterling, Ohio, and later in Vevay, Indiana, until 1879 at which time he found his way to Morgan, Utah.

Morgan is not a large town. In 1890, the population was only 333, hardly enough to support a medical school, but the town was located on a main artery westward in the beautiful valley of the Weber River, 24 miles east of Ogden. The famed Hastings cutoff passed through this valley connecting with Echo valley to the east. Today the Union Pacific Railroad and U.S. Highway 30 S and a spur of Interstate 80 pass through the town. Thus, Morgan lay on a major thoroughfare and had many visitors.

Recognizing the advisability of securing the sanction of the LDS Church, Dr. Kohler, a Presbyterian, discussed his plan with William M. Parker, the bishop of the Morgan ward. An organizational meeting was held at the Morgan branch of the Zion's Cooperative Mercantile Institution. (At that time nearly every Mormon town had a branch of ZCMI, but most of them lasted less than 15 years). Shortly after this meeting, the following circular statement was issued:

Bp. W. M. Parker
President

Jas. M. Mason
Vice-Pres.

A. Peterson, *Secretary*

MEDICAL COLLEGE OF UTAH

Morgan City, Morgan Co., U.T.

The regular lectures in this institution will commence on Wednesday, March 10th, 1880, and will close about the last of June. The second regular course will commence Nov. 1st, 1880, and continue sixteen weeks.

Fees: Matriculation, $5.00. Tickets, term $80.

The Graduation fee is twenty-five dollars.

The location is a favorable one in the midst of one of the most beautiful mountain regions on the continent (Weber Station, U.P.R.R.).

For further information apply to

F. S. Kohler, M.D.
Dean of the Faculty

It was reported that six students attended throughout the first session, and a later announcement registered ten matriculates. An 1882 announcement listed four graduates: Mrs. Emeline Rich, fifth wife of Apostle Charles Coulson Rich, one of the ruling Quorum of the Church of Jesus Christ of Latter-day Saints; Benjamin Rush Kohler, son of the founder, and two others who were not known by the reported, *viz.* J. F. Costello of Pennsylvania, and D. J. McCauley of Iowa. In 1882 Dr. Kohler prepared an announcement listing a faculty of four: Himself, B. Rush Kohler, Emeline Rich, and S. W. Howard for the third term, to begin August 2, 1882. The third session was never held, however. A copy of the announcement fell into the hands of the Salt Lake Daily Herald, a now defunct newspaper, which printed a scathing denunciation of the school which was rebutted a few days later by William B. Parkinson, Bishop of the North Morgan Ward of the L.D.S. church. A polemic followed, and Dr. Kohler left for Denver. The implication was that the school was a diploma mill, but several facts suggest that the college was valid, although the headmaster was timid. Dr. Kohler enjoyed a good professional reputation which was never impugned. Emeline Rich, although she apparently never used the appellation of doctor, practiced midwifery in her home county of Bear Lake for years thereafter. Dr. Kohler returned to Morgan and continued to live there for five years after the Herald's campaign continuing to teach but with emphasis on midwifery and not conferring M.D. degrees. It is said that more than twenty midwives were trained by him during that time. In 1887 he moved to Nampa, Idaho, becoming one of the town's leading citizens. He died January 1, 1908.

Shortly after the demise of the Medical College of Utah, Bishop Parkinson resigned his position and went to Chicago, receiving his M.D. degree from the Rush Medical College in 1883. He later received another medical degree from the University of Louisville

and returned to Utah to practice medicine in Logan.

The story of the Utah Medical College at Morgan was lost for years, there being no one living in 1959 that remembered anything more than a faint recollection that a medical college had once existed in Morgan. The American Medical Directory, 20th edition in 1958, still listed the medical college as having existed. The story was tediously pieced together by Robert T. Divett, former librarian of the University of Utah Library of Medical Sciences in Salt Lake. Information was obtained from a search of church records and clippings from the Salt Lake Daily Herald of the period. This paper and other historical material were made available to me through the kind of assistance of Miss Priscilla Mayden, Medical Librarian, University of Utah College of Medicine, to whom I am most indebted. •

REFERENCES

Bulletin. 48:1-10, 1960.

[1] Divett, Robert T.: The Medical College of Utah at Morgan. Medical Library Association

[2] Divett, Robert T.: Medicine and The Mormons. Medical Library Association Bulletin. 51:1-15, 1963.

Spontaneous abdominal aorto-vena caval fistula - -

A mechanism for acute intractable cardiac failure

Devendra Saksena, MD* and Clynn R. Ford, MD**
Salt Lake City, Utah

THE DEVELOPMENT of a spontaneous aorto-vena caval fistula in man is a rare cardiovascular event. Rupture of an abdominal aortic aneurysm with erosion through the vena caval wall adjacent to it is the pathologic mechanism by which a spontaneous fistula develops. Most commonly, the aneurysm is of the degenerative arteriosclerotic type but in rare instances it has been caused by mycotic or syphilitic aneurysms of the abdominal aorta.[1]

The clinical manifestations associated with rupture of an abdominal aortic aneurysm associated with fistula formation depend upon the degree of retroperitoneal bleeding which may be associated with the rupture, the abruptness of onset, and the size of the left-to-right shunt through the fistula. If the rupture is solely into the vena cava (i.e., if blood is completely contained in the vascular tree), the symptoms may be very subtle and related primarily to the left-to-right shunt which develops.

The following case report illustrates the more subtle form of spontaneously developing aorto-vena caval fistula.

CASE REPORT

Mr. L. V. was a 68-year-old male who had known arteriosclerotic heart disease with cardiac arrhythmias which had been controlled with digitoxin, 0.15 mg. daily, for a number of years. He also had been troubled with recurrent urinary calculi over the last 20 years. Ten days prior to his admission to the L. D. S. Hospital cystoscopy was performed with removal of a bladder stone which had been passed from the kidney. Two days following cystoscopy and eight days prior to his admission, the patient noted the sudden onset of a very rapid heart beat followed several days thereafter by the development of shortness of breath, precordial palpitations, and subsequent edema and swelling in both of his thighs and hips.

*Chief Resident, Thoracic and Cardiovascular Surgery Latter-day Saints Hospital.

**Assistant Clinical Professor of Surgery, University of Utah College of Medicine; Staff Member, Thoracic and Cardiovascular Surgery, Latter-day Saints Hospital and Inter-Mountain Clinic, Salt Lake City, Utah.

An ECG six days before admission showed an AV junctional tachycardia. Prior to that time he had been in sinus rhythm with occasional premature ventricular extrasystoles. Digitoxin was withheld for three days with the return of his rhythm to a sinus mechanism which persisted.

He had experienced no abdominal pain at any time, but did notice a mild, vague, lumbar back pain. Three days prior to admission the patient noticed increasing shortness of breath with dyspnea at rest and orthopnea. The swelling progressively increased in his thighs, advancing downward into his legs. There was an abrupt increase in weight of 12 lbs. He was admitted to the L. D. S. Hospital on May 5, 1970.

Examination on admission revealed a patient who was in some distress at rest. Weight 182; BP 148/60; pulse 84, regular; temperature 99°F; respirations 20/minute. In addition to the venous engorgement in the region of the groin, distention of jugular veins in his neck with a jugular dance was present. Moist rales could be heard at the base of the lungs bilaterally. There was a Grade III/VI harsh blowing systolic murmur at the apex and over most of the precordium. No cardiac thrill was palpable. The liver edge was palpable three fingerbreadths below the right costal margin; it was tender but non-pulsatile. There was a vague, deep tenderness in the mid-abdomen just above and to the right of the umbilicus and the aortic impulse was felt to be more prominent than normal. A definite aortic aneurysm could not clearly be outlined on palpation. A continuous thrill with crescendo and decrescendo characteristics was palpable underlying the right rectus muscle just above the level of the umbilicus. A loud bruit was heard with the same characteristics over the entire abdomen, being loudest at the site of palpable thrill. There was edema of the scrotum. The extremities showed marked pitting edema of the upper thighs and hips with very slight edema of the legs below the knees. All peripheral pulses were palpable in the lower extremities.

Laboratory studies revealed: VPRC 39.4%; Hemoglobin 13 g; and WBC 13,900 with 72% polys, 15% lymphocytes, 9% monocytes, 2% myelocytes, and 2% metamyelocytes. The platelets were normal. Urinalysis revealed a negative sugar, negative albumin, 10 wbc/hpf, and 30-40 rbc/hpf. Chemistry survey was normal except for: Uric acid 10; BUN 32.8; and SGOT 109. Urine culture was negative. Blood gases revealed a pH of 7.43 with a PCO_2 of 36 and a PO_2 of 76. Partial thromboplastin time was 35 seconds which was normal. The prothrombin time was 48%. Electrolytes were normal.

ECG at the time of admission revealed a sinus rhythm, a PR interval of 0.22 seconds, and ST changes consistent with digitalis effect.

The chest x-ray showed moderate cardiomegaly, moderately severe congestion of the pulmonary vessels, interstitial edema, and small

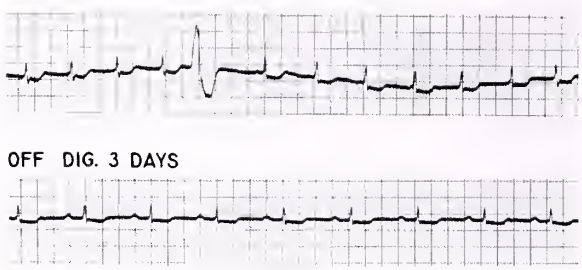


Fig. 1. ECG (lead II) shows AV junctional tachycardia. A PVC allows the temporary restoration of sinus rhythm followed by AV dissociation as the faster AV junctional focus regains control. The bottom tracing shows the restoration of sinus rhythm with first degree AV block three days after the withdrawal of digitoxin.

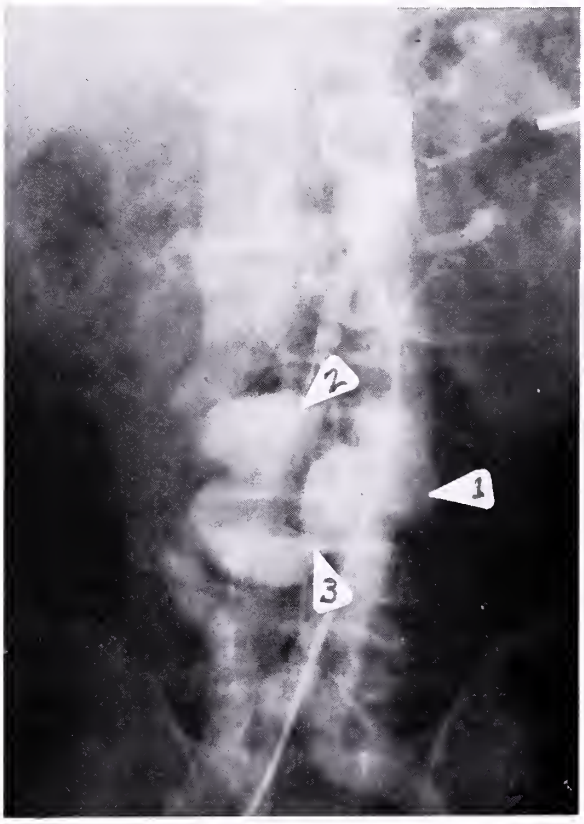


Fig. 2. The PA chest film at the time of admission demonstrates cardiomegaly, pulmonary congestion and interstitial edema.

pleural effusions bilaterally. (Fig. 2) Abdominal films revealed a calcified shadow just to the left of the midline. Laminograms of the abdominal aorta suggested the presence of slight enlargement of this vessel and raised the question of aortic aneurysm. A transfemoral retrograde aortogram demonstrated a small aortic aneurysm which compressed the vena cava to the right and eroded into the vena cava, producing a large aorto-vena caval fistula. The aortogram also demonstrated extensive venous collateral circulation in

markedly enlarged vessels. (Fig. 3) This confirmed the diagnosis of ruptured abdominal aortic aneurysm with aorto-vena caval fistula.

HOSPITAL COURSE: The severe intractable congestive heart failure which was present was felt to be due to the large left-to-right shunt. The cardiac status of the patient appeared to be progressively worsening. Intensive medical therapy to improve the cardiac status was instituted. A mechanical prep of the bowel was accomplished. A central arterial monitoring catheter was placed via the right radial artery.

On May 12, 1970, laparotomy was carried out through a left paramedian incision from the xyphoid to the pubis. Exploration revealed the presence of an aortic aneurysm which had ruptured and eroded through the left postero-lateral wall of the vena cava, pushing the vena cava to the right and forward. There was a large aorto-vena caval communication. There was considerable increase in the venous congestion and development of collateral venous pathways about the aorta, vena cava, and in the retroperitoneal tissues. There was no evidence of extravasation of blood into the retroperitoneal tissues. (Fig. 4)

The posterior peritoneum was opened. The aorta and the inferior vena cava above the aneurysm and the iliac arteries and veins below the level of the fistula were isolated and encircled with umbilical tapes. After these vessels were occluded, attention was directed to the circulatory dynamics. The patient remained stable and appeared to tolerate the occlusion of both the arterial

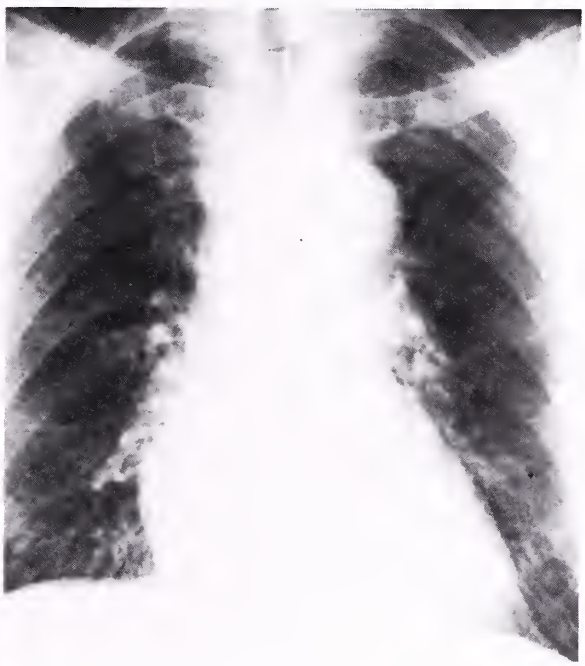


Fig. 3. An aortogram done by the transfemoral retrograde catheter technic demonstrates an aortic aneurysm and aorto-vena caval fistula. Arrow I: Aortic aneurysm. Arrow 2: Vena cava. Arrow 3: AV Fistula.

Fig. 4. The aorta-vena caval fistula in situ *after exposure at surgery. The vena cava is pushed antero-laterally to the right of the aneurysm. Arrow 1: Aorta. Arrow 2: Vena cava. Arrow 3: AV Fistula.*

and venous tree without drop of blood pressure. An arterial monitoring catheter measuring central arterial pressure and pulse contours giving cardiac output facilitated this observation. The aneurysm was incised in its anterior wall and a clot was removed. There remained considerable venous flow through the fistula coming from lumbar veins. The site of the fistula was occluded by compression. The lumbar arteries were transfixed and the aorto-vena cava fistula was closed from the aortic side with multiple figure-of-eight vascular sutures. The size of the fistula was approximately 1.7 cm. in diameter. Following closure of the fistulous tract from within, the anterior wall of the aorto-vena caval communication was sutured to the prevertebral fascia posteriorly to reinforce the closure. The aorta was then repaired with a segmental dacron graft, 22 mm. in diameter. (Fig. 5)

The aneurysmal wall was sutured in place over the new aortic graft to protect it from the duodenum lying anteriorly. Following removal of tapes and clamps, excellent pulses were achieved in the vessels of the legs. At the time of the closure of the fistula, care was taken to prevent any clot from being dislodged into the vena cava through the lumen of the fistula to produce embolization to the lung. Closure of the retroperitoneum was done in a routine fashion after hemostasis was secured and the abdomen was closed with a layer closure and, in addition, through and through wire sutures placed extraperitoneally.

Fig. 5. The completed surgical correction, with closure of the AV fistula and reconstruction of the aorta with a segmental woven Dacron graft. Arrow 1: Aorta, repaired with segmental graft. Arrow 2: Vena cava.

The patient followed a smooth postoperative course with rapid disappearance of the edema in his thighs. There was rapid decrease in the pulmonary congestion and decrease in heart size as seen on chest x-ray. (Fig. 6) Pulse pressure and blood pressure returned to normal. He was discharged on the 10th postoperative day in a remarkably improved condition and has remained so for one year.

Fig. 6. Postoperative PA chest film eight days following surgery shows return of heart size to normal and complete disappearance of the pulmonary congestion.

Comment

In the case presented above, the onset of aorto-vena caval fistula was rather subtle and at first clinically unimpressive. The first significant change in the status of the patient appeared to be the development of an AV junctional tachycardia. It seems likely that the AV junctional tachycardia, clinically known to be one of the common manifestations of digitalis toxicity, represented the unmasking of a marginal digitalis toxcity by the early high-output failure syndrome, possibly through some hemodynamic or hormonal mechanism. He had previoulsy been very stable on digitoxin, 0.15 mg. daily, for many years. Following the rhythm change, a progressively severe high-output cardiac failure appeared. There was abrupt onset of shortness of breath, pelvic girdle edema, palpitation, and pulmonary congestion. The cardiac failure remained intractable to the usual methods of treatment. The peculiar pelvic girdle edema extending into the thighs along with the continuous buzzing thrill in the right mid-abdomen suggested the presence of an arterio-venous fistula as the mechanism for the acute onset and progression of the heart failure. These observations prompted definitive angiographic studies which clarified the diagnosis.

Discussion

Recognition and successful surgical correction of spontaneously arising aorto-vena caval fistulae has been reported in an occasional case from various medical centers in this country and abroad.[2-8] This disease entity is uniformly fatal if unrecognized and untreated. As suggested by Nennhaus and Javid, it presents as a distinct clinical syndrome.[9] Characteristics to be remembered are:

1. Fistula formation between the aorta and vena cava may occur unheralded by any perceptible abdominal symptoms such as pain or appearance of a mass, or even perception by the patient of a bruit.

2. Shortly after fistula formation there is a selective increase in venous pressure of the lower abdominal and pelvic girdle veins leading to a peculiar pelvic girdle and thigh edema with relative absence of edema in the distal extremities and upper trunk.

3. A high output cardiac failure ensues. This is manifested by tachycardia and in some instances by rhythm disturbances, pulmonary congestion, cardiac enlargement and pleural effusion. Engorgement of neck veins and pectoral girdle veins resulting from cardiac failure develops subsequent to that seen

earlier in the pelvic girdle veins. A widened pulse pressure develops. The cardiac failure is difficult to control with the usual intensive medical measures.

4. A continuous crescendo-decrescendo thrill is palpable in the abdomen and a corresponding bruit can be heard.

5. The aneurysm in the abdominal aorta may or may not have been clinically recognized prior to the onset of fistula formation. The rupturing aneurysm may be small and defy clinical recognition until the complications of erosion and rupture occur. This is the situation which obtained in our case.

When the clinical features noted above are present, they should clearly suggest the need for abdominal aortography which will accurately identify the aorto-vena caval communication. The cardiovascular consequences following fistula formation depend largely on the size of the left-to-right shunt which can be fairly well quantitated by aortography. The aortogram aids considerably in making preoperative plans for the surgical approach to correction of the lesion. The configuration of the aneurysm and the position of its protruding weak spot will determine the focus of impingement on and erosion into the vena cava. The cava may be pushed posteriorly with penetration of its anterior wall, it may be pushed laterally with erosion of its medial wall, or it may be pressed anteriorly with erosion of its posteromedial wall as was the situation in our case. As has been pointed out by Cooley and others, an aortic aneurysm in rare instances may fistulate into the left renal vein which in their case passed posterior to the aorta.[10]

When abdominal aortic aneurysms rupture, producing extravasation of blood into the retroperitoneum as well as developing fistulation into the vena cava, the clinical picture at the outset is that of an acute abdominal catastrophe requiring immediate surgical intervention if salvage of the patient is to be achieved. Under these circumstances the AV fistula may go unrecognized until it is uncovered at the time of surgery.

Summary

1. An aorto-vena caval fistula usually arises spontaneously by rupture and erosion of an abdominal aortic aneurysm into the adjacent vena cava. The acute form manifests itself clinically as would any acute ruptured abdominal aortic aneurysm but with the added feature of aorto-vena cava fistulation which may lead to acute cardiac failure.

2. The chronic form of spontaneous aorto-vena caval fistula presents with a much more subtle onset, but evolves into a well recognized syndrome of progressive high-output cardiac failure and eventual renal and hepatic failure. The characteristics of this syndrome are well-illustrated by the case reported. If one is mindful of this syndrome, an accurate diagnosis will usually be made.

3. Aortography accurately confirms the diagnosis of aorto-vena caval fistula and aids in planning the surgical repair of this lesion.

4. Spontaneous aorto-vena caval fistulae arising from ruptured abdominal aneurysms are uniformly fatal if they are not recognized and treated. They are surgically curable if recognized and appropriately treated prior to the end stage of cardiac, renal, and hepatic failure. •

ACKNOWLEDGMENT

We thank Dr. Alan E. Lindsay for ECG interpretations and review of this paper.

REFERENCES

1 Somers, K., and Marcus, R. T.: Spontaneous abdominal aortocaval fistula in a Ugandan African. Brit. J. Surg. 56:152-153, 1969.
2 Eisman, B., and Hughes, R. H.: Repair of abdominal aortic vena caval fistula caused by rupture of atherosclerotic aneurysm. Surgery 39:498-504, 1956.
3 Shumaker, H. B., Jr., and Jontz, J.: Rupture of abdominal aortic aneurysm into inferior vena cava; successful surgical repair. Am. Surgeon 22:1182-1185, 1956.
4 DeBakey, M. D., Cooley, D. A., Morris, G. C., Jr., and Collins, H.: Arteriovenous fistula involving abdominal aorta: report of four cases with successful repair. Ann. Surg. 147:646-658, 1958.
5 Darling, R. C., and Linton, R. R.: Aneurysm of the abdominal aorta with rupture into the inferior vena cava: report of two successfully treated cases. New. Eng. J. of Med. 267:974-976, 1962.
6 Shieber, W., and Miller, R. B.: Spontaneous abdominal aortic aneurysm—vent cava fistula. Missouri Medicine 66:415-417, 1969.
7 Knox, W. G., Miller, R. E., Dwyer, E. M., and Guthrie, R.: Abdominal aortic aneurysm-vena caval fistula: report of cardiac function and blood volume following surgical correction. Annals of Surg. 164:947-950, 1966.
8 Beal, A. C., Cooley, D. A., Morris, G. C., Jr., and DeBakey, M.E.: Perforation of arteriosclerotic aneurysms into inferior vena cava. Arch. Surg. 86:809-818, 1963.
9 Nennhaus, H. P., and Javid H.: The distinct syndrome of spontaneous abdominal aortocaval fistula. Am. J. of Med. 44:464-473, 1968.
10 Yasher, J. J., Hallman, G. L., and Cooley, D. A.: Fistula between aneurysm of aorta and left renal vein. Arch. Surg. 99:546-548, 1969.

THE MUSCLE RELAXANT THAT DOES WHAT'S EXPECTED

AND LESS

Some skeletal muscle relaxants cause generalized muscle weakness. Not Norflex. Some require dosages as high as eight tablets a day for effective relief. Norflex relaxes only the muscles in spasm on one tablet b.i.d. Norflex checks pain. Reduces rigidity. Restores mobility. Has less side effects too. So Norflex does what's expected. And does it with less inconvenience.

Norflex®
(ORPHENADRINE CITRATE)
1 TABLET (100 mg.) B.I.D.

Indications: Acute spasm of voluntary muscles, regardless of location; especially post-traumatic, discogenic, and tension spasms.
Dosage: Two tablets per day for adults, regardless of weight or sex; one in the morning and one in the evening.
Contraindications: Contraindications for Norflex are due to the anticholinergic action of orphenadrine. Norflex should not be used in patients with glaucoma, pyloric or duodenal obstruction, stenosing peptic ulcers, prostatic hypertrophy or obstruction at the bladder neck, cardiospasm (megaesophagus) and myasthenia gravis. It should be used with caution in patients with tachycardia.
Since mental confusion, anxiety and tremors have been reported in patients receiving orphenadrine and propoxyphene concurrently, it is recommended that Norflex not be given in combination with propoxyphene (Darvon®).
Side Effects: Side effects of Norflex (orphenadrine citrate) are mainly due to the mild anticholinergic action of orphenadrine, and are usually associated with higher dosage. Dryness of the mouth is the first side effect to appear. When the daily dose is increased, possible side actions include: tachycardia, palpitation, urinary hesitancy or retention, blurred vision, dilatation of the pupil, increased ocular tension, weakness, nausea, vomiting, headache, dizziness, constipation, drowsiness and, rarely, urticaria and other dermatoses. Infrequently, an elderly patient may experience some degree of mental confusion. These mild side effects can usually be eliminated by reduction in dosage. Two cases of aplastic anemia associated with the use of Norflex tablets have been reported. No causal relationship has been established.
For full information, see Package Insert or P.D.R.

Riker Laboratories, Inc. SUBSIDIARY OF 3M COMPANY
NORTHRIDGE, CALIFORNIA 91324

Sponsor of Riker-Service—The Complimentary Classified Service for Physicians

Melanoma in Utah

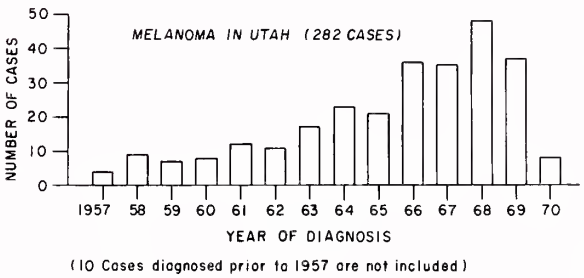
Leland B. Cowan, MD, Charles R. Smart, MD†, and Virginia Moslander,‡ Salt Lake City, Utah

MELANOMA COMPRISES about 1-2 per cent of all cancers and 20 per cent of all skin cancers. It is frequently considered to have an extremely poor prognosis, but with adequate treatment the survival is equal to or better than a number of other neoplasms. The following report is based on data from the Utah State Tumor Registry which is part of the Intermountain Regional Tumor Registry and Rocky Mountain States Cooperative Tumor Registry. The object of this report is to analyze melanoma in Utah, to evaluate diagnosis and treatment and to emphasize the level of survival that can be achieved.

Clinical Material

This study included 282 cases of melanoma of the skin (excluding eye, vulva and anus) collected from January 1, 1957 to April 1, 1970 with 95 per cent current follow-up. Microscopic confirmation was obtained in 99 per cent of the cases. Table 1 shows the number of cases diagnosed per year. The much higher number in recent years reflects the more complete reporting to the registry. Only since 1966 have we had a state-wide reporting from all hospitals.

TABLE 1



Fifty-four per cent were males and 46 per cent were females. This is in contrast to the usual preponderance of females reported in other series.[1] No attempt was made to determine the pregnancy status of any of the female patients since this has recently been proven to have no bearing on the survival of these patients.[2] Ninety-eight per cent were Caucasian, with only two per cent being of another race. The negro population in Utah is very small; however, there were two cases of melanoma in negroes, emphasizing the fact that this race is not immune to this disease.

The distribution of these melanomas on the body is shown in Table 2, 31 per cent being found on the head and neck, 36 per cent on the limbs, 21 per cent on the trunk and 11 per cent being multiple or having generalized disease at the time of diagnosis.

**A computerized registry system, a confederacy of Colorado, Idaho, Montana, Wyoming and Utah state tumor registries.

†Director Rocky Mountain State Cooperative Tumor Registry.

‡Coordinator Rocky Mountain States Cooperative Tumor Registry.

TABLE 2

UTAH TUMOR REGISTRY

MELANOMA DISTRIBUTION BY SITE

Site	#	% of Melanoma
Lip	1	0.3
Eyelid	4	1.5
Ear	12	4.0
Face	37	12.5
Scalp & Neck	37	12.5
Trunk	62	21.0
Upper Limb	47	15.0
Lower Limb	63	21.0
Multiple	9	3.0
Generalized	23	7.0

Age

Melanoma is rare in childhood, but at puberty it begins to increase in frequency and reaches a high point at about 50 to 55 years of age and declines thereafter (see Table 3). It should be noted that the so-called juvenile melanoma (spindle cell or epithelioid nevus) is not included in this report. It is not a melanoma but a benign histologically distinct lesion which can occur at any age, but is more frequent in childhood.[3]

Diagnosis

As with most cancers, there is some delay in arriving at a diagnosis. The interval between onset of symptoms to the time a physician was contacted was under one month in 70 per cent of the cases, between one and three months in 17 per cent, and over three months in 13 per cent. Physician delay and treatment delay were much less, and the diagnosis was established within one month in 95 per cent, and treatment instituted immediately in 98 per cent as shown in Table 4. Twenty-five cases (8 per cent) were associated with other primary malignancies.

TABLE 3

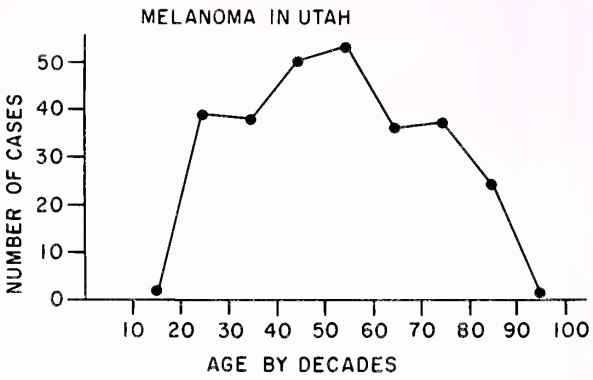


TABLE 4

MELANOMA IN UTAH

	Under 1 Month	1-3 Months	Over 3 Months
Patient Delay (Sym - Dr)	70%	17%	13%
Physician Delay (Dr - Dx)	95%	3%	2%
Treatment Delay (Dx - Rx)	98%	2%	0.0%

TABLE 5

MELANOMA IN UTAH

STAGE OF DISEASE AT DIAGNOSIS

Localized	194	69%
Regional	50	18%
Distant	26	9%
Unknown	12	4%
All	282	100%

Stage of Disease

The stage of disease at the time of diagnosis was localized in 69 per cent, regional in 18 per cent, distant in nine per cent and unknown in 4 per cent, as shown in Table 5.

Treatment

Primary treatment consisted of surgery alone in 90 per cent of the cases. Subsequent treatment in 88 cases (31 per cent) was also surgical. A small number were treated by isolation perfusion, radiation, or systemic chemotherapy alone or in combination as shown in Table 6.

TABLE 6

MELANOMA IN UTAH

PRIMARY TREATMENT GIVEN IN FIRST FOUR MONTHS
SUBSEQUENT RX GIVEN AFTER FOURTH MONTH

Type Rx	Primary Rx	Subseq. Rx
Surgery	256	88
Radiation	1	3
Surg-radiation	4	1
Chemotherapy	5	9
Surg-chemotherapy	10	11
Surg-rad-chemo	1	7

Survival

The absolute five-year survival rate calculated according to the method of Berkson and Gage was 70.6 per cent for those with localized disease, 41.7 per cent for those with regional disease, and 57.2 per cent for the total group as seen in Table 7. No attempt was made to determine whether death was due to the melanoma, and the 12 patients which were lost were calculated as being dead in the year in which they were last seen.

Since it has been commonly reported that the survival rate is better in women than in men,[1,4] these two groups were first compared as to stage of disease. Women have been previously noted to have a greater percentage of localized disease than men. In the present series 75 per cent were localized in females as compared to 65 per cent in males. There were insufficient numbers of cases to be statistically significant when one compares the survival by stage between the sexes.

Discussion

Melanoma is a relatively uncommon neoplasm, and probably because of this is not so well understood as the more frequently encountered malignancies. A recent study was performed in North Carolina on the accuracy of physicians' prognosis of the more favorable types of cancer patients. In melanoma there was the greatest discrepancy between fact and fancy, 76 per cent believing it to be an extremely unfavorable lesion. A comparison of the survival rate of patients with melanoma and the ten most frequent malignancies seen in the Utah Registry is shown in Table 8. When diagnosed at an early (localized) stage of disease and adequately treated, melanoma is among the more controllable of malignancies.

Its location on the skin where both the patient and physician can readily observe it should lead to early diagnosis and treatment. The diagnosis should be made by excisional biopsy. For other types of skin cancer, an

TABLE 7

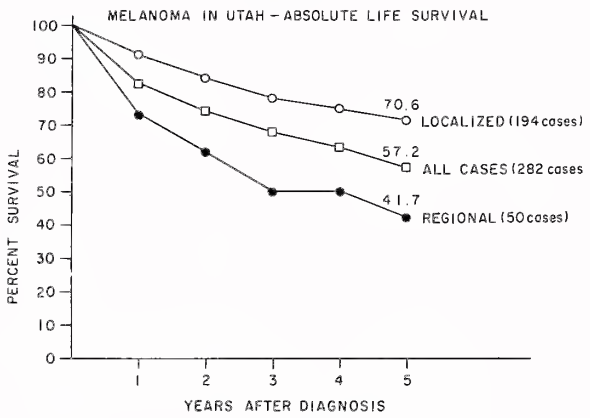


TABLE 8

UTAH TUMOR REGISTRY

MELANOMA VS TEN MOST FREQUENT CANCERS

Site	Total # Cases	5 yr Survival Rate vs Stage at Dx: Localized	All
Melanoma	282	70.6%	57.2%
Breast	2550	76.0	54.5
Cervix Uteri	2150	81.2	67.0
Prostate	1607	45.5	35.6
Lung	1597	23.3	6.4
Colon	1480	60.5	33.8
Bladder	838	55.4	44.4
Corpus Uteri	818	79.2	65.9
Stomach	691	43.5	10.7
Rectum	689	58.7	35.2
Ovary	475	69.9	26.1

excisional biopsy may also accomplish adequate treatment. This is not true for melanoma. The usual minimal treatment should be a very wide resection of the excisional biopsy scar (approximately 4-5 centimeters on each side), including all of the subcutaneous tissues and the deep fascia down to the muscle.[5] In some areas, particularly on the extremities, this will frequently necessitate a skin graft to close the defect. For very superficial lesions with no clinically suspicious regional nodes, wide local resection may be adequate. With more extensive lesions involving the deep dermis or subcutaneous tissues, even in the presence of clinically negative nodes, a prophylactic in-continuity regional node dissection should be strongly considered if anatomically feasible. With clinically positive nodes, this is, of course, all the more important.

In recent years, chemotherapeutic perfusion of extremity lesions has been used as an adjuvant to surgery; some authors' results suggest an increase in survival of as much as 10 per cent.[6,7,8] Still more recently, the use of regional hyperthermia and perfusion has given encouraging preliminary results in the control of extremity lesions. Although melanoma is considered a relatively radioresistant lesion, the use of radiation therapy as a palliative measure is more effective than is generally appreciated.

Within the past 2-3 years, systemic chemotherapy has been shown to be useful in the palliative treatment of disseminated disease. Specific agents used for this have been imidazole carboxamide and hydroxyurea.

In 1966, Nadler and Moore,[9] demonstrated significant regression of melanomas following cross transplantation of tumors between two patients and 10-14 days later carrying out daily leukocyte cross transfusions. In this same year, Muna, et al., demonstrated circulating antibodies in 16 or 17 patients with advanced melanoma which has now been confirmed by others.[10] Smallpox vaccine was utilized in Australia for direct injection of subcutaneous metastatic melanomas with the successful disappearance of many lesions.[11] In 1970, Morton, et al., utilized BCG vaccine to inoculate subcutaneous lesions with complete regression in 90 per cent of 184 melanoma nodules in selected patients.[12] Drs. Creech and Krementz, pioneers in isolation perfusion, have been investigating the use of cultured living melanoma cells as a vaccine with some success in a small number of patients.

Melanoma, like breast and thyroid cancer, may continue to take its toll long after the five-year period. In the present series 15 patients are living with or have died of their disease 8 to 13 years after the diagnosis. Hendrix pointed out that many patients can be cured or get long term palliation from subsequent treatment.[13] This emphasizes the need for careful regular life-long re-examination of these patients.

Summary

Two hundred eighty two cases of melanoma in Utah have been reviewed over a thirteen year period. Principles of diagnosis and treatment have been discussed. Although melanoma is a highly malignant disease, adequate treatment can produce a survival equal to or better than a number of other neoplastic conditions. In this series of patients, an absolute over-all five-year survival rate of 57.2 per cent has been achieved. •

REFERENCES

[1] End Results in Cancer, Report No. 3, U.S. Department of H.E.W., Public Health Service Publication, 141-147, 1968.
[2] George, P. A., Fortner, J. G., Pack, G. T.: Melanoma with Pregnancy; Report of 115 Cases. Cancer, 13:854-859, 1960.
[3] Fish, J., Smith, E. B., Canby, J. P.: Malignant Melanoma in Childhood. Surgery, 59:309-315, 1966.
[4] Nathanson, L., Hall, T. C., and Farber, S.: Biological Aspects of Human Malignant Melanoma. Cancer, 20:650-655, 1967.
[5] Booher, R. J.: Recognition and Treatment of Melanoma. Surgical Clinics of North America, 49:389-403, 1970 (April).
[6] Stehlin, J. S., Clark, R. L.: Melanoma of Extremities. Am. J. Surgery, 110:365-383, 1965.
[7] Rochlin, D. B., Smart, C. R.: Treatment of Malignant Melanoma by Regional Perfusion. Cancer, 18:1544-1550, 1965.
[8] Kremmentz, E. T., Creech, O., Jr., Ryan, R. F.: Evaluation of Chemotherapy of Cancer by Regional Perfusion. Cancer, 20:834-838, 1967.
[9] Nadler, S. H., Moore, G. E.: Immunotherapy of Malignant Melanoma. Geriatrics, 23:150-153, 1968 (May).
[10] Muna, N. M., Marcus, S., Smart, C.: Detection by Immunofluorescence of Antibodies Specific for Human Malignant Melanoma Cells. Cancer, 23:88-93, 1969 (January).
[11] Hunter, C. I., et al.: Use of Vaccinia Virus in the Treatment of Metastatic Malignant Melanoma. Brit. Med. J., 2:512-5, 1970 (May).
[12] Morton, D. L., Eilber, F. R., Malmgren, R. A., Wood, W. C.: Immunotherapy in Malignant Melanoma. Surgery, 68:158-164, 1970 (July).
[13] Hendrix, R. C.: Unusual Survival Patterns of Patients with Metastatic Melanoma. Cancer: 574-576, 1969 (September).

"Welcome back, Ann"
As adjunctive therapy
DOUBLE STRENGTH
Orenzyme®
Bitabs
One tablet q.i.d.
Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units; equivalent in tryptic activity to 40 mg. of N.F. trypsin
Reduces swelling
Hastens healing
Speeds recovery
trauma
One tablet q.i.d.
Indications: When used as adjunctive therapy for the rapid resolution of inflammation and edema, good results have been obtained in:
□ Accidental Trauma □ Postoperative Tissue Reactions.
Other conventional measures of treatment should be used as indicated. In infection, appropriate anti-infective therapy should be given.
Contraindications: ORENZYME BITABS should not be given to patients with a known sensitivity to trypsin or chymotrypsin.
Precautions: It should be used with caution in patients with abnormality of the blood clotting mechanism such as hemophilia, or with severe hepatic or renal disease. Safe use in pregnancy has not been established.
Adverse Reactions: Adverse reactions with ORENZYME have been reported infrequently. Reports include allergic manifestations (rash, urticaria, itching), gastrointestinal upset and increased speed of dissolution of animal-origin surgical sutures. There have been isolated reports of anaphylactic shock, albuminuria and hematuria. Increased tendency to bleed has also been reported but, in controlled studies, it has been seen with equal incidence in placebo-treated groups. (See Precautions.) It is recommended that if side effects occur medication be discontinued.
Dosage: One tablet q.i.d.
THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144
TRADEMARK: BITABS U.S. PATENT NO. 3,004,893 9/70 0-009A 161

A
BUILDING BLOCK
TO RECOVERY

Orenzyme® Bitabs

Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units; equivalent in tryptic activity to 40 mg. of N.F. trypsin

The causes of vaginitis are multiple

Trichomonads... monilia... bacteria
You can depend on AVC—comprehensive therapy that combats all three major vaginal pathogens, alone or in combination.

AVC
Cream (aminacrine hydrachlaride 0.2%, sulfanilamide 15.0%, allantoin 2.0%)

Suppositories (aminacrine hydrachlaride 0.014 Gm., sulfanilamide 1.05 Gm., allantoin 0.14 Gm.)

Contraindications: Known sensitivity to sulfonamides.
Precautions/Adverse Reactions: The usual precautions for topical and systemic sulfanamides should be observed because af the possibility of absorption. Burning, increased local discomfort, skin rash, urticaria or other manifestations of sulfonamide toxicity are reasans to discantinue treatment.
Dosage: One applicatorful or one suppository intravaginally once ar twice daily.
Supplied: Cream – Four-ounce tube with or without applicator. Suppasitories – Box of 12 with applicatar.

TRADEMARK: AVC AV-007A 7/70 Y-149

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC
PHILADELPHIA, PENNSYLVANIA 19144

AVC
The treatment is singular

Hypospadias*

One-stage repair

Thomas Ray Broadbent, MD and Robert M. Woolf, MD,
Salt Lake City, Utah

THE MANAGEMENT of the patient with hypospadias requires proper sex determination and assignment. At birth the parents are advised not to have the boy circumcised for the prepucial skin is essential for any repair of hypospadias, especially a one stage operation. Surgical correction is deferred until five to five and one-half years of age to allow for growth of a frequently small penile organ, and yet to provide correction before the beginning of school thereby avoiding undue emotional stress. A boy needs to be able to stand and void like his male classmates if he is to avoid curiosity and embarrassment.

One stage correction is preferred because it offers the patient minimal scarring, minimal hospitalization, and costs. Comparable functional and aesthetic results follow. In any repair of hypospadias one must a. correct the state of chordee, during erection as well as when the penis is flaccid, b. construct an adequately sized urethra free of hair, obstructing bands and stricture, and c. produce a urethra capable of growth and distention, free of fistula, and with meatal orifice near or at the tip of the glans penis. Hypospadias of the mid-shaft, penoscrotal and perineal varieties can be successfully corrected in one stage with a buried, vascularized skin strip technic. This repair is not recommended for coronal and balanitic types.

Diversion of the urinary stream is produced by a perineal urethrostomy performed by cutting down on a metal sound in the urethra, grasping and everting the urethral mucosa and slipping a #12 Foley catheter into the bladder. (Fig. 1). Bleeding is controlled, the position of the hypospadiac opening permitting, with a soft, rubber drain placed as a tourniquet at the base of the penile shaft. Blood is squeezed from the penis, the rubber drain drawn snugly but not harshly about the penis, and the drain held tight with a clamp.

Dye (brilliant green) is used to outline the incisions. A skin strip is marked that extends around the hypospadiac meatus and extends distally along the ventral aspect of the penis. The strip deviates gently to the right (or to the left) and runs onto the dorsum of the distal penile skin (prepuce) to just beyond the dorsal midline. The skin strip is

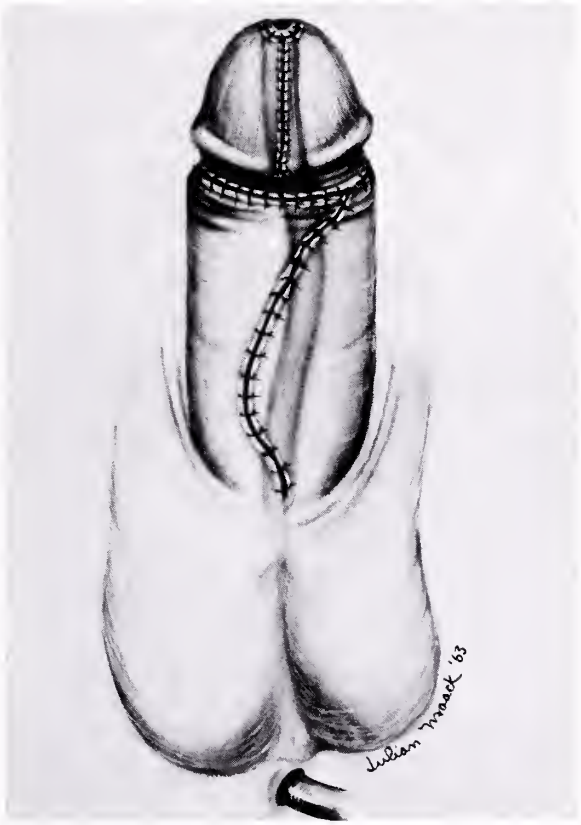


Fig. 1. Skin strip tubed to form new urethra brought to the tip of the glans penis. The remaining prepuce has been shifted to the ventral surface for closure over the new urethra and may, though not shown, extend onto the glans itself, if the glans is too small to close over the new urethra. Note perineal urethrostomy for urinary diversion.

*Department of Plastic Surgery, Primary Children's Hospital, Salt Lake City, Utah.

wide enough to loosely encompass a #12 French catheter, about one-third the circumference of the penis. Caution is taken to insure this width of tissue at the hypospadiac meatus and at the corona, the two most likely sites for fistula formation if the closure is unduly tight. The incision along the distal edge of the strip, on the dorsum of the penis, is extended along the edge of the prepuce and around the penis to contact with itself ventrally near the midline. (Fig. 2) The prepucial skin, except for the skin strip, can then be mobilized as required for shifting and rotation to the ventral surface. This tissue will be used to cover the new urethra (tubed skin strip.) Fibrous tissue producing the chordee is excised. Correction of the chordee and straightening of the penis always allows the hypospadiac opening to retire toward the scrotum. It is essential that the previously outlined skin strip be long enough to accommodate for this apparent lengthening of the penis and, thus, the extension of the strip to or slightly beyond the dorsal midline.

If the glans penis is large enough, it is tunneled or even cored out to receive the new urethra. If, as is usually the case, it is too small, it is split along the ventral midline to its tip so that the new urethra may lie in the substance of the glans. The skin strip is not undermined but left attached to its

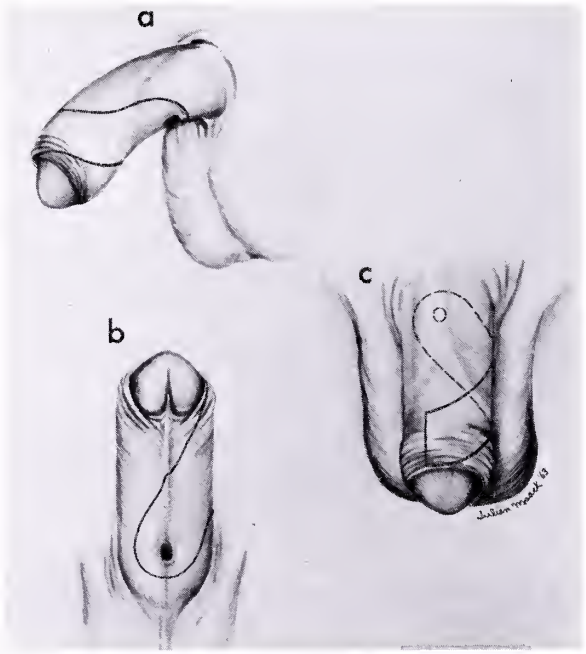


Fig. 2. One-stage corection. Outline of skin strip for construction of new tubed urethra.

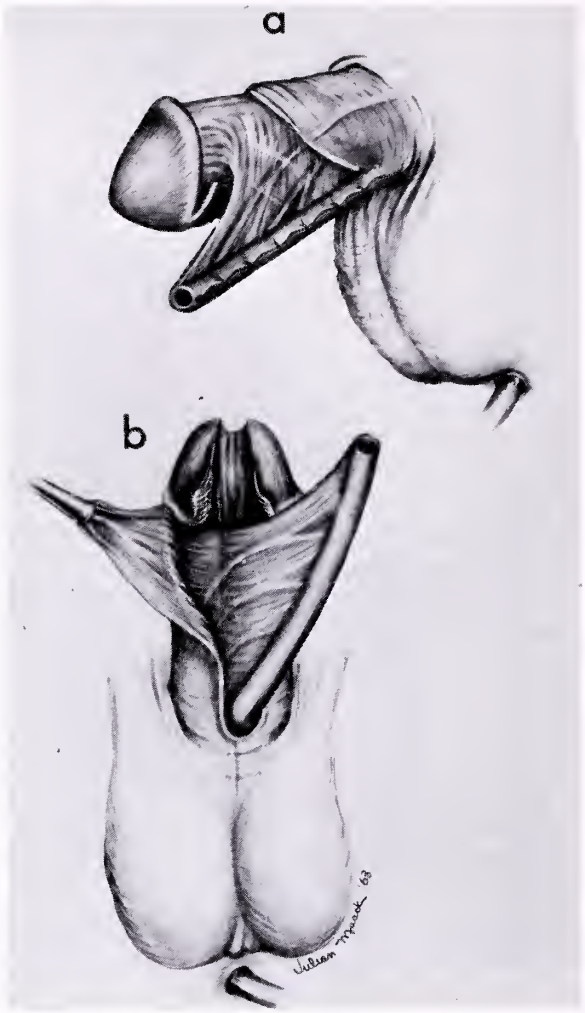


Fig. 3a. Skin strip tubed but left attached to underlying soft tissue acting as a "vascular mesentery." 3b. Note glans having been split or cored to receive the new urethral tube.

"mesentery" of loose areolar tissue and vessels. (Fig. 3) The skin strip is tubed with a continuous #5-0 catgut suture and a re-enforcing layer of non-absorbable #6-0 dacron sutures further buttresses this tubing. The distal portion of the tubed skin strip is pulled gently from its dorsal position, avoiding all but the slightest distal mobilization, and threaded into or laid into the glans penis. The meatal orifice is fixed at the tip of the penis with interrupted #5-0 or #6-0 catgut sutures.

The rubber drain tourniquet is removed and hemostasis meticulously accomplished with electro-coagulation. Only then may the closure be safely completed, for seemingly unavoidable edema in these tissues can be frightening but a hematoma is disastrous to

normal healing. The remaining, previously mobilized prepucial skin is rotated to the ventral surface and used to cover the new urethra; extending when necessary onto the glans penis. Closure is effected with subcutaneous #6-0 dacron sutures. The skin may be closed with subcuticular nylon pull-out suture or a continuous or interrupted suture of #5-0 catgut. (Fig. 1) The penis including the glans, is bandaged with fine mesh vaseline gauze and Tensoplast tape applied with modest tension and arranged so that the penis remains in an erect position, thereby enhancing venous drainage.

Postoperatively, the patient is in bed for ten to twelve days. Bladder irrigation is not used—only over the bed sterile drainage. At the end of ten days, the dressings are removed. Two days later the perineal catheter is removed and voiding allowed through the new urethra and the perineum. The perineal urethrostomy opening closes spontaneously in three to four days.

Summary

A one-stage surgical repair for mid-shaft, penoscrotal and perineal varieties of hypospadias has been presented. Urinary diversion during healing is accomplished by a perineal urethrostomy. The correction of more distal forms of hypospadias is carried out in two stages, as described in the following report. •

Hypospadias

Two-stage repair

REPAIR OF HYPOSPADIAS in one stage has been recommended in mid-shaft, penoscrotal, and perineal varieties.[1] The complication of postoperative fistula formation following hypospadias repair was found, in most instances, to be in the coronal and balanitic forms of hypospadias when corrected in one stage. To avoid this complication, a two-stage procedure in these more distal forms is advised and described.

In any type of repair of hypospadias, one should: (a) Correct the state of chordee, during erection as well as when the penis is flaccid. (b) Construct an adequately sized urethra free of hair, obstructing bands and stricture. (c) Produce a urethra capable of growth and distention, free of fistula, and with a meatal orifice at or near the tip of the glans penis.

Repair is preferrably carried out after there has been some growth and yet, before the child enters school (age five) where he may be the subject of ridicule and embarrassment if his deformity remained uncorrected.

It is important to be certain of proper sex assignment. This is not a diagnostic challenge in distal forms of hypospadias.

Parents, nurses and physicians are advised to avoid circumcision on any hypospadiac. The prepucial skin is valuable building material in urethral reconstruction.

Pre-operatively, proper bathing and cleansing, adequate sedation to avoid anxiety, preparation for, and the administration of a general anesthetic, and surgical positioning and draping are as preferred by the surgeon.

First Stage

A suture is placed in the tip of the glans penis for traction; and a half-inch wide soft rubber drain placed around the base of the penis as a tourniquet for control of bleeding during the dissection. Distal to the hypospadiac opening, an incision is made around the penis essentially on the edge of the distal fold of the prepucial skin. (Fig. 1-A & B) The glans penis is fileted or split down the

middle to its tip. (Fig. 1-C) Fibrous tissue producing chordee is excised along with removal of the thin, atrophic, midline surface epithelium. Care is taken to extend the excision of fibrous tissue far enough laterally to avoid contracture and recurrence of chordee. In the course of this dissection, the hypospadiac opening will retire towards the scrotum as the penis is straightened. The prepucial skin is split in the midline dorsally, and the two flaps thereby created are rotated ventrally to resurface the glans and the ventral surface of the penis. (Fig. 1-B) A suture is placed on each lateral aspect of the glans to retract and hold the split glans open for application of the flaps of prepucial skin and to hold it in this position at the time of dressing. (Fig. 1-D) The tourniquet is removed from the base of the penis before the closure is initiated, and hemostasis meticulously controlled with electro-coagulation. Wounds are closed with interrupted or continuous sutures of 5-0 catgut.

In effect, the patient has been circumcised and the chordee corrected. The ventral aspect of the shaft of the distal penis and the glans itself have been resurfaced with flaps of prepucial skin.

A #12 Foley urethral catheter is placed in the bladder, the wounds distal to the catheter covered with fine mesh vaseline gauze, and the penis reflected up onto the abdomen. The penis is placed in a padded dressing of dry gauze sponges and gently compressed against the abdominal wall with elastic tape. A tension suture in the tip of the penis, and the lateral traction sutures on the glans, are taped to the abdomen to hold the penis in this position. The catheter is taped to the abdomen to avoid any tension or pressure on the repaired distal penile structures, and sterile, over-the-bed bladder drainage is used for ten days.

The second stage of correction is done after the tissues are soft and pliable. Ordinarily, this would require six to eight weeks, but seeing no reason for hurry, we would wait three or four months between the first and the second operations. Preparation for surgery is not different than for the first operation.

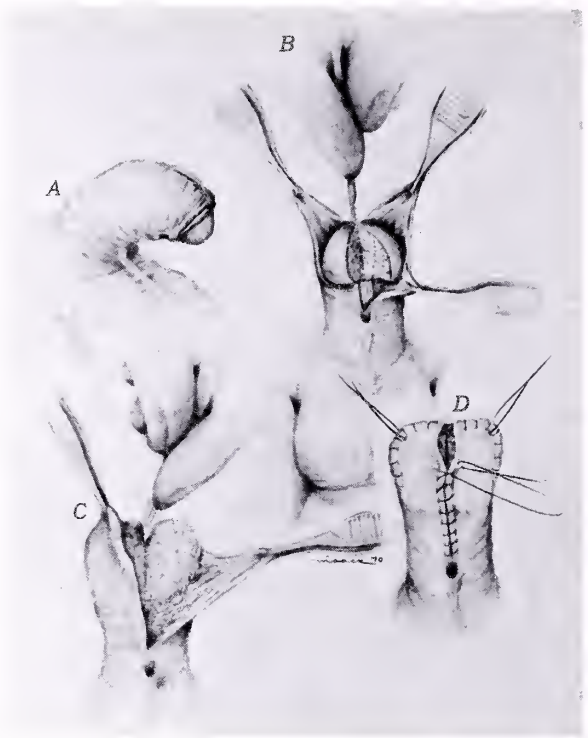


Fig. 1. First Stage: A. Incision distal to the hypospadiac opening is carried circumferentially around the penis on the distal fold of the prepuce. B. The glans is split on its ventral surface, and in the midline to, or just distal to, its tip. The prepucial flaps are split in the midline dorsally, and fibrous tissue producing chordee is resected. C. & D. The two flaps of prepucial skin are shifted to the ventral surface and used for resurfacing the ventral surface of the penile shaft and the fileted and opened glans penis.

Second Stage

The main goal of the second operation is construction of the urethra from the hypospadiac opening to the tip of the penis. It is desirable to avoid any pressure or tension on the suture lines and, therefore, the urinary stream is diverted through a perineal urethrostomy. (Fig. 2) This is performed by "cutting down" on a metal sound in the urethra just posterior to the scrotum and in the midline. The urethra is entered, the mucosal edges everted with small hemostats, and a #12 Foley catheter inserted into the bladder. A suture or two of 5-0 catgut might be desirable on either side of the catheter at the point of incision in the skin.

Bleeding is again controlled by compressing the blood from the penis and placing a soft rubber drain snugly, but not harshly,

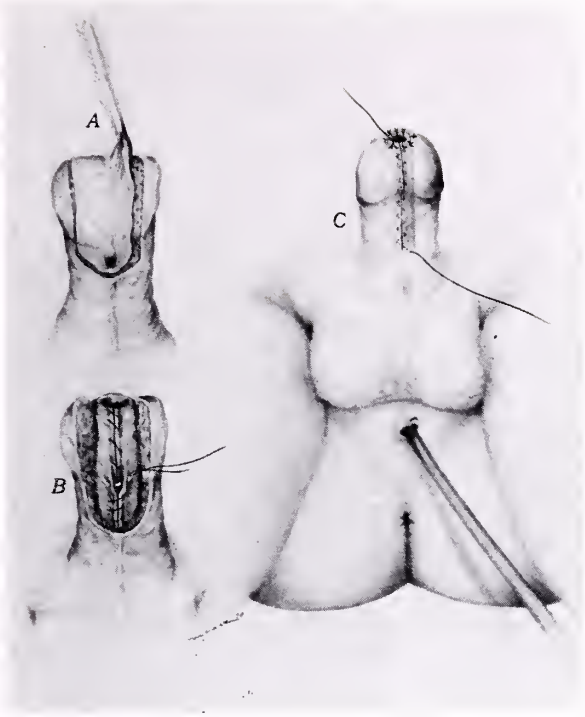


Fig. 2. Second Stage: A. U-shaped incision around the hypospadiac opening and on the ventro-lateral aspect of the penis leaving a skin strip sufficiently wide to loosely cover a #12 French catheter. B. The skin strip outlined in A. is tubed with continuous 5-0 catgut and a buttressing layer of interrupted 6-0 non-absorbable Dacron. C. The remaining loose skin is advanced over the newly constructed urethra and closed with buried Dacron and a pull-out of 4-0 nylon or catgut. NOTE: Urine has been diverted by perineal urethrostomy.

around the base of the penis as a tourniquet. This is, of course, released before the wounds are closed, and hemostasis carefully controlled with electro-coagulation.

A U-shaped incision is made extending around the hypospadiac opening and distally along the ventro-lateral aspect of either side of the penis. (Fig. 2-A) This outlines a skin strip sufficiently wide to encircle, without tension, a #12 French catheter. These incisions are carried distally along the penile shaft and onto the skin flaps resurfacing the glans. Little or no mobilization of the skin strip, or of the surrounding skin, is required. The skin strip is tubed with a continuous suture of 5-0 catgut. This encloses the hypospadiac opening and constructs a skin-lined tube running to the tip of the glans penis. Inasmuch as the flaps that had been shifted to the ventral aspect of the penis at the time of the first-stage operation are more than adequate for urethral reconstruction, there is tissue left for closure over the new urethra. The tubed strip, new urethra, is buttressed with a row of interrupted sutures of 6-0 Dacron. (Fig. 2-B) The lateral adjacent tissues are advanced over the new urethra, burying it and giving it external skin cover. This closure is effected with interrupted, buried sutures of 6-0 Dacron and a continuous skin suture of 5-0 catgut or a pull-out of 4-0 nylon. (Fig. 2-C)

The French catheter is not left in the reconstructed urethra. The penis is held in the position of erection to enhance venous drainage and minimize edema. The penis is covered with fine mesh vaseline gauze and elastic tape. It is important to place little compression around the base of the penis and maximum compression near the tip. The dressing is removed after eight to ten days and, unless there is excessive edema, the perineal catheter is removed two or three days thereafter. The patient is allowed to void through the perineal urethrostomy and the newly constructed urethra. The urethrostomy will spontaneously close in three to four days.

A two-stage procedure on distal varieties of hypospadias has greatly decreased postoperative complications such as fistula formation. When fistula does occur, it must, of course, be closed as an independent procedure after healing is complete and the tissues are soft and pliable.

Two-stage operative repair of distal forms of hypospadias is recommended. •

ARTIFICIAL EYES

Plastic eyes and glass eyes specially made to fit the most difficult cases. An expert eye-maker is in our office at all times to give your patients the satisfaction they must have. In business since 1906.

Write or phone for full details.

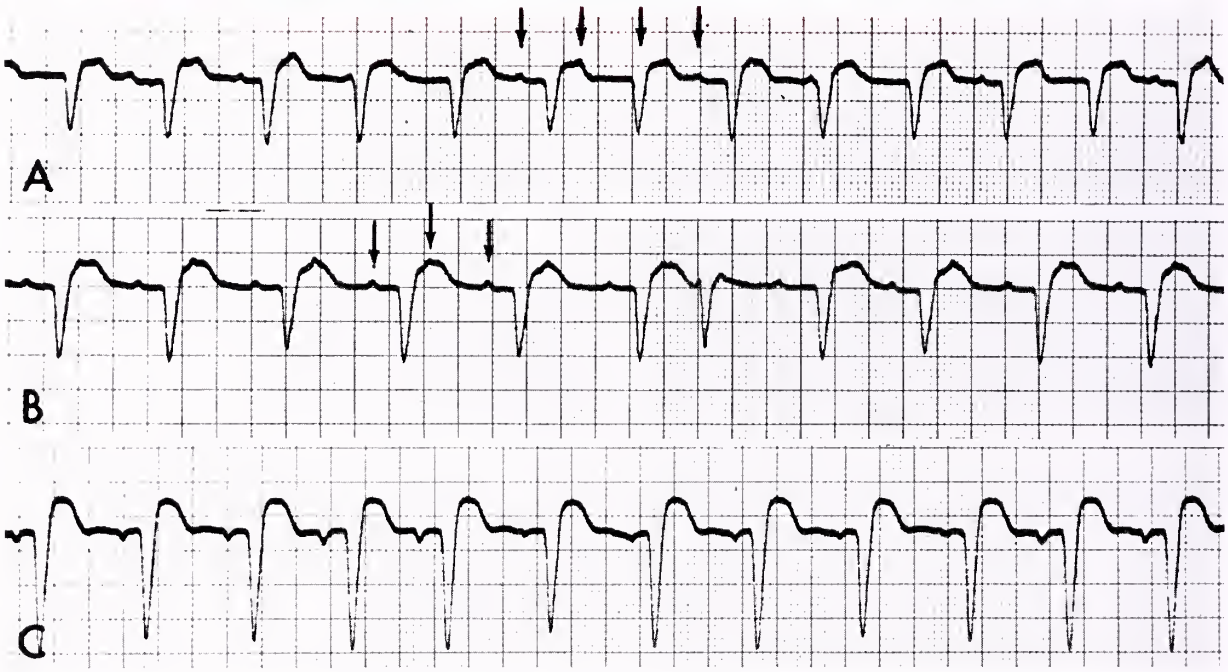
DENVER OPTIC COMPANY

330 University Bldg. • 16th and Champa • 825-0229

Denver, Colorado 80202

"WHAT'S THE RHYTHM?"

Prepared by Alan E. Lindsay, MD,* Salt Lake City



THE PATIENT: An elderly male who developed atrial fibrillation and congestive heart failure shortly after a thoracotomy for a lung tumor. Digoxin (1.5 mgm. in two days) slowed his ventricular rate partially. Oral diuretics were also administered.

THE TRACINGS: Bipolar chest leads were used to obtain tracings simulating V1.

TRACING A: Three days after the initiation of therapy. Serum K 2.9 mEq/L. The atrial rate is 175, the ventricular rate, 112. The atria and ventricles are beating independently, indicating AV dissociation. The normal QRS forms suggest that the ventricles are driven by an AV junctional pacemaker. The rhythm, then, is DOUBLE TACHYCARDIA (ectopic atrial and AV junctional in origin) with complete AV dissociation.

TRACING B: Six hours later, after 60 mEq KCL had been given intravenously. Serum K has risen to 3.2 mEq/L. The rapid atrial rate of 180 indicates persistent ectopic atrial tachycardia but a return to AV conduction with a 2:1 response now results in a ventricular rate of 90. Since Tracing A the AV junctional tachycardia has terminated. The premature complex in the middle of the strip is probably an ectopic beat but may be the second beat of an abortive Wenckebach period.

TRACING C: 12 hours later. Serum potassium now 4.0 mEq/L. Sinus rhythm, with slight phasic change in atrial rate and P-wave morphology, is seen.

THE IMPLICATION: Enhancement of ectopic pacemakers which leads to a rapid regular heart rate during the course of digitalis therapy is a serious and potentially lethal condition and calls for immediate attention. Even small to moderate doses of digitalis given to a hypokalemic patient may result in rhythms such as those illustrated above. The administration of further doses of digitalis in a misguided attempt to "slow the heart" will usually result in death. Of equal importance to digitalis withdrawal is a swift correction of concomitant hypokalemia. Other ECG manifestations of digitalis toxicity, such as multifocal ventricular extrasystoles and AV heart block, are more dramatic and less likely to be unrecognized.

REFERENCE

"Digitalis-Induced Arrhythmias and Their Management." G. V. Irons, Jr., and E. S. Orgain, Prog. in Cardiov. Dis., VIII: 539, Mar. 1966.

MATERNAL MORTALITY

The following case has been reviewed by the Colorado Maternal Mortality Committee* and selected for publication because of its educational value.

Coagulopathies

THERE ARE FOUR obstetric conditions in which a physician can anticipate coagulopathies. These are abruptio placentae; retained dead fetus; amniotic fluid embolus; and septic abortion.[1] In the case presented we have a woman with a maternal history of diabetes, a dead fetus and a prenatal history of failure to gain. Any or all of these elements should be a warning that if the patient does have a significant blood loss her life would be in peril.[2] In fact, though the efforts to stem the course of the patient's blood loss were herculean, the patient expired little more than one week after admission.

CASE REPORT

A thirty-one-year-old female, gravida three, para two, of thirty-seven weeks gestation was admitted because of loss of fetal movement. Physical findings were blood pressure 94/60; respiration 30; pulse 120; and temperature 36.4. Her pulse was difficult to obtain peripherally and had to be taken apically or by carotid pulsation. She appeared somewhat lethargic with dry mucous membranes; the eyes had icteric sclera; and her uterus seemed irritable with consistent tonus but without point tenderness. Fetal heart tones could not be heard with stethoscope or doppler. The cervix was 2-3 cm dilated, 30 per cent effaced at minus 1 station. Laboratory findings were: amniotic fluid clear; hematocrit 34%; fibroginogen 400 mg%; platelet count 491,000; prothrombin time 100%; urine showed positive icto test. Her history was benign, two normal pregnancies, no surgery, general good health, except for failure to gain weight during pregnancy and a mother with diabetes. During a six hour labor her blood pressure varied between 84/53 and 80/30. She received 30 mg Talwin I. V. At delivery she was noted to be ashen, cold and clammy with no obtainable blood pressure. She was delivered of a still-born female by Elliott mid-forceps. There was a 1 cm. cervical laceration at three o'clock and a third degree perineal laceration. The placenta was removed manually and appeared within normal limits. No defects were found in the uterus. The patient was given Ephedrine 25 mg, I.V. ; epinephrine and sodium bicarbonate. Her condition improved greatly. She was responsive and had recordable, normal blood pressure, but shortly thereafter, began deteriorating again. This time it was noted that her abdomen was becoming distended. A paracentesis was done productive of free blood and the patient was taken immediately to the operating room for laparotomy. Her hematocrit at this time was 5 per cent. A series of four operations followed, all carried out in an attempt to stop hemmorrhage or to sustain life. The patient was found to have a torn left ovarian vein. Total abdominal hysterectomy and bilateral salpingo-oophorectomy were performed. During a second laparotomy an infarcted small bowel was found necessitating resection of the bowel, illeostomy, jejunostomy and gastrostomy. A tracheostomy was done and the patient was placed in Intensive Care.

The patient had been digitalized immediately after her first surgical procedure; required isoprel to maintain her blood pressure; and was able to be taken off respirator for only short periods of time. Continued oozing from her abdominal stomal sights required electro-cauthery for coagulation. Blood pressure ranged from 84/60 to 102/56. Pulse was 116 to 120, CVP went from 11 to 8.5, and temperature was 39° rectally. Blood values were, hematocrit 44%; white count 27,500, 81% polys;

*The following physicians have been appointed to serve on the Maternal Mortality Committee, a subcommittee under Maternal and Child Health: Horace E. Thompson, Chairman, E. N. Akers, Maxwell A. Abelman, L. Joseph Butterfield, Warren E. Cooper, Gerald W. Del Junco, Lawrence W. Roessing, all of Denver; John H. Darst, Greeley; Harold L. Dyer, Colorado Springs; Richard R. Hansen, Fort Collins; Ronald E. Harrington, Boulder; James R. Patterson, Englewood; Louis C. Wollenweber Jr., Lakewood.

Ef-
fic-
iency

Dicarbosil®
ANTACID

Your ulcer patients and others will confirm it. Specify DICARBOSIL 144's—144 tablets in 12 rolls.

ARCH LABORATORIES
319 South Fourth Street, St. Louis, Missouri 63102

bands 18,000 platelets; partial thromboblastin time 43/97, sodium 144, potassium 4, chloride 107, CO_2 15, protime 13/17, arterial pH 7.37.

The patient had a decrease in tolerance off the respirator. Examination revealed a course rhonchi and the CVP had increased to 15. There was some frothy pink fluid coming from the tracheostomy tube. Chest x-ray at this time showed pulmonary edema. Diuretics and digitalization were again administered. During a 24-hour period the hematocrit had dropped from 44% to 34% and platelet from 79,000 to 10,000. Fibrinogen levels remained normal. Because of this, six units of fresh platelets were given. Chest film revealed bilateral infiltrates.

The patient remained febrile with her temperature rising to 39 degrees. Lab values at this date were consistent with the hepatitis with a significant increase in the SGOT over 600 units. Temperature was 40.4 degrees rectally and did not respond to 15 grains of aspirin on two occasions. Urinary output remained at 50-100 cc per hour in response to intravenous lasix. Despite an increase in BUN and creatinine, antibiotics were restarted after proper cultures were obtained. It was noted on the following morning the patient was requiring more pressure to inflate her lungs. It was thought that the possibility of reversal of her disease at this time was quite grim.

The patient had a vaginal examination in attempt to find the source of her fever. A loculation of foul smelling, blood serous fluid was drained. The cuff could not be completely opened but there was no evidence of hematoma found. Approximately 10 minutes following pelvic examination, the patient had a cardiac arrest. She expired during attempted resuscitation.

Autopsy findings were: Bronchial pneumonia, bilateral, severe. Pseudomonas in sputum. A post-op complication after bowel resection of small bowel infarct due to hemmorhagic shock, secondary to torn left ovarian vein. Other significant conditions: 1. necrosis of remaining small bowel. 2. Purulent red peritoneal fluid, 1800 cc. 3. Subdural hematoma over right occipital lobe. 4. Hepatomegaly with congestion and friability. 5. Gallbladder stones multiple. •

Education Committee
Colorado Maternal Mortality Committee

REFERENCES

[1] Messer, Robert H.: Coagulation Problems in Obstetrics. Medical Clinics of North America. 53:1088, 1969.

[2] Jimenez, Juan M., and Jack A. Pritchard: Pathogenesis and Treatment of Coagulation Defects Resulting From Fetal Death. Obstetrics and Gynecology. 32:449-459, 1968.

PRECEPTORSHIPS

One week preceptorships for a small number of physicians will be available in 1971-72. The first opening is April 12-16, 1971.

This is an opportunity to spend five days in office and hospital practice with the Missoula or Las Vegas Coronary Care Training Program faculty members.

Precise details will be determined by conference with individual preceptees. In general, the morning will be devoted to study and discussion of a single patient. The afternoon will be spent in ECG reading or other areas of special interest for the visiting physician. A conference with preceptees and faculty will conclude the afternoon.

Enrollment is limited to two physicians during each one week period.

Registration fee: $50.00. Checks should be payable to WICHE.

Forward check and application to:

WICHE MS/RMP
Coronary Care Training Program
500 West Broadway
Missoula, Montana 59801

CALORIES / 7 oz. Serving*

Beef Broth	22	Vegetable	68
Consommé	29	Tomato	69
Chicken with Rice	43	Cream of Asparagus	70
Chicken Gumbo	48	Cream of Chicken	76
Chicken Noodle	54	Cream of Mushroom	115
Cream of Potato	58	Green Pea	116
Chicken Vegetable	60	Cream of Shrimp (Frozen)	132
Vegetable Beef	66	Bean with Bacon	133

In planning high or low calorie diets, Campbell's more than 50 different soups offer you a wide choice. And, most of Campbell's Soups contain a wide variety of ingredients that can serve as supplementary sources of many essential nutrients.

* From "Nutritive Composition of Campbell's Products" which gives values of important nutritive constituents of all Campbell's Products. For your copy, write to Campbell Soup Company, Dept.35, Camden, New Jersey 08101.

There's a soup for almost every patient and diet ....for every meal and, it's made by Campbell

THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

At Your Own Risk; The Case Against Chiropractic: By Ralph Lee Smith. New York, 1969, Trident Press. 179 p. Price: $4.95.

Breast Cancer: Early and Late: By M. D. Anderson Hospital and Tumor Institute. Houston, Tex, 1970, Yearbook. 447 p. Price: $14.50.

Cardiovascular Dynamics: By Robert F. Rushmer. 3rd ed. Philadelphia, 1970, Saunders. 559 p. Price: $15.00.

Clinical Aids in Cardiac Diagnosis: By William Dressler. New York, 1970, Grune. 246 p. Price: $12.75.

Craig and Faust's Clinical Parasitology: By Ernest Carroll Faust, Paul Farr Russell and Rodney Clifton Jung. 8th ed. Philadelphia, 1970, Lea. 890 p. Price: $20.00.

Diseases of the Chest: By Corwin Himshaw. 3rd ed. Philadelphia, 1969, Saunders. 799 p. Price $25.00.

Dynamic Factors in Diagnosis of Supratentorial Brain Tumors By Cerebral Angiography: By Norman E. Leeds and Juan M. Taveras. Philadelphia, 1969, Saunders. 122 p. Price: $15.00.

Essentials of Clinical Endocrinology: By Norman G. Schneeberg. St. Louis, 1970, Mosby. 449 p. Price: $22.50.

General Systems Theory and Psyehiatry: Edited by William Gray, Frederick J. Duhl and Nicolas D. Rizzo. Boston, 1969, Little, Brown. 481 p. Price: $15.00.

General Urology: By Donald R. Smith, 6th ed. Los Altos, California, 1969, Lange. 416 p. Price: $8.00.

Hearings on Issues and Trends in Medical Care: Edited by Mitchell Schorow. Salt Lake City, Utah, 1970, Intermountain Regional Medical Program. 145 p. Price: $2.00.

Human Genetics: By Victor A. McKusick. 2nd ed. Englewood Cliffs, New Jersey, 1969, Prentice-Hall. 221 p. Price: $3.95.

The Human Thymus: By Gideon Goldstein and Ian R. Mackay. St. Louis, 1969, Green. 352 p. Price: $12.50.

Manual of Clinical Allergy: By John M. Sheldon, Robert G. Lovell and Kenneth P. Mathews. 2nd ed. Philadelphia, 1967, Saunders. 550 p. Price: $15.00.

Megaloblastic Anemias: By I. Chanarin. Oxford, 1969, Blackwell Scientific Publications. 1000 p. Price $35.00.

Microsurgery. By M. G. Yasargil. New York, 1969, Academic Press. 230 p. Price: $13.50.

Ocular Pharmacology: By William H. Havener. 2nd ed. St. Louis, 1970, Mosby, 556 p. Price: $29.50.

Only By Public Consent: By L. L. L. Golden. New York, 1968. Hawthorn Books, Inc. 386 p. Price: $7.95.

The Patient As Person: By Paul Ramsey. New Haven, 1970, Yale. 283 p. Price: $10.00.

Practical Electrocardiography: By Henry J. L. Marriott. Baltimore, 1968, Williams and Wilkins. 282 p. Price: $8.50.

Radiology of the Small Intestine: Ry Richard H. Marshak and Arthur E. Lindner. Philadelphia, 1970, Saunders. 510 p. Price: $32.00.

Synopsis of Anatomy: By Liberato J. DiDio. St. Louis, 1970, Mosby. 530 p. Price: $17.75.

Synopsis of Dermatology: By William D. Stewart, Julius L. Danto and Stuart Maddin. 2nd ed. St. Louis, 1970, Mosby. 445 p. Price: $13.85.

Theory and Practice of Group Psychotherapy: By Irvin D. Yalom. New York, 1970, Basic Books, Inc. 398 p. Price: $10.00.

When disability strikes, will you have an income to live on?

Be sure! Offer your family the extra security of your Society's own disability income protection plan.

PAYS up to $1,000.00 a month when you're sick or hurt and can't work. This is TAX-FREE cash to spend as you see fit—to meet those financial obligations that continue whether you're able to work or not.

For complete details on this outstanding plan underwritten by Mutual of Omaha and endorsed by the Colorado Medical Society, complete the coupon below and mail it today.

UNDERWRITTEN BY

Mutual of Omaha

The Company that pays

Life Insurance Affiliate: United of Omaha

MUTUAL OF OMAHA INSURANCE COMPANY HOME OFFICE OMAHA, NEBRASKA

Colorado Division Office
2nd Floor, Railway Exchange Bldg.
Denver, Colorado 80202

Please rush me full details on the Colorado Medical Society's Disability Income Protection Plan.

Name .....

Address .....

City..... Stote..... ZIP.....

1-70 — 1-71

COLORADO

Program Director to Head Western States Group

Dr. Howard W. Doan of Aurora, director of the Colorado-Wyoming Regional Medical Program (CWRMP) has been elected chairman of the Western Area RMP Coordinators Conference for 1971. Composed of coordinators and directors of RMP's in the 13 western states, including Alaska and Hawaii, the conference meets twice a year to set policies and coordinate activities among the nine RMP's covering the states.

As chairman, Dr. Doan will be one of two delegates representing the western states on the Coordinators' National Steering Committee, which serves as advisory body to the director of the Regional Medical Programs Service, U.S. Department of Health, Education and Welfare, Washington, D.C.

The 55 RMP's encompassing the entire nation are working cooperatively with health personnel and institutions in their respective regions to improve the quality and delivery of health care in the U.S., particularly in the area of heart disease, cancer, stroke, kidney disease and related conditions.

In Colorado and Wyoming, CWRMP is supporting a broadly based and growing system of professional education and health-related activities for health personnel in the two states.

Grant Approved for Allergy Training Program

The National Jewish Hospital and Research Center (NJHRC) and the University of Colorado School of Medicine have received a grant totaling $292,767 to support a joint training program in pediatric allergy. Notification of the grant came from the National Institutes of Allergy and Infectious Diseases.

An initial payment of $40,408 has been awarded for the year beginning July 1, 1970, and additional support totaling $252,359 was recommended by NIAID to fund the program through 1975. The program will be geared to train pediatric allergists for medical school faculty posts. Trainees—two for the first year and four each year thereafter—will receive two or more years' instruction and experience in immunology, pulmonary physiology, pharmacology and other aspects of allergy as well as clinical techniques.

MONTANA

New A.C.P. Affiliates

The American College of Physicians recently announced that Raymond D. Grondahl, MD, Butte, has been granted fellowship in the college. Other Montana physicians who were awarded membership (formerly associateship) in this 54-year-old international medical specialty society include Drs. Bryce D. Breitenstein, Jr., Missoula; William A. Reynolds, Missoula; John P. Byorth, Billings; Phillip E. Griffin, Jr., Billings; Richard C. Nelson, Billings; Wayne M. Roney, Billings; and Ronald H. Smith, Billings.

MEDICAL SCHOOL NOTES

University of Colorado Medical Center

In his capacity as a director of the Children's Metabolic Research Foundation, Governor John A. Love has presented the Foundation's check for $10,000 to the University of Colorado Medical Center in further support of the B. F. Stolinsky Research Laboratories. The gift represents a further installment on the Foundation's pledge of $80,000 to complete financing on the construction and equipping of the Stolinsky Laboratories, which occupy the three upper floors of the Kennedy Center building on the CU medical campus. The laboratories were opened in 1968, and are being utilized by a corps of medical scientists in intensive investigations of the metabolic, genetic, biochemical and neurological conditions which are hazards to normal child development.

The labs are named in honor of Bernard F. Stolinsky, prominent New York and Miami philanthropist and industrialist, who has been a major benefactor of the Children's Metabolic Research Foundation. The Foundation's pledge of $80,000 made possible acceptance of a $330,000 grant from the National Institutes of Health for constructing and equipping the laboratories.

The Foundation, with national headquarters in Denver, was organized several years ago to encourage research into congenital metabolic disorders which affect children. Originally the Gaucher Research Foundation—Gaucher's disease is one of the inborn "errors" of metabolism with which the group is concerned—the organization changed its name in 1967 to indicate its interest in solving other similar problems which result in developmental disorders and mental retardation in children.

* * * * *

Dr. Alan F. Guttmacher, distinguished New York obstetrician-gynecologist and world leader in planned parenthood movement, delivered a public lecture entitled "A World's-Eye View of Family Planning" at the University of Colorado Medical Center Nov. 16.

Dr. Guttmacher is president of Planned Parenthood-World Population and has been active in the voluntary birth control movement for several decades. He is a member of the faculty of the Albert Einstein College of Medicine and professor emeritus of obstetrics and gynecology in the Mount Sinai School of Medicine.

His address inaugurated the observance of Population Concern Week, sponsored by Planned Parenthood of Colorado. The week was proclaimed by Governor John A. Love and was the first state-wide campaign on the overpopulation problem undertaken in the country.

University of Nevada School of Medical Sciences

In an address to the Kiwanis Club recently, Philip J. Gillette, administrator of the University of Nevada School of Medical Sciences said that Americans must face up to the need for a major reorganization of our health system, and that this should be a partnership between government, the providers of health services and the public recipients of such services.

Gillette, who was a hospital administrator and faculty member of the University of Washington, Seattle, before coming to the Reno campus approximately one year ago, said health is now considered a *right* rather than merely a *privilege.* He said the greatest challenge facing medicine today is the delivery of high quality health care and health maintenance to all who need it, at a price which individuals and society can afford to pay.

But while health is expected to become the "number one industry" in the United States during the 1970's, based on such factors as size, dollars spent, numbers of personnel involved, and investment in facilities, it is faced with "major problems" which include rising costs, poor distribution of health facilities and manpower, fragmentation of services available, ecological aspects of health such as man's survival, behavioral health problems such as drug abuse, alcoholism and mental illness, legal and moral issues related to organ transplants, termination of life (abortion, etc.,), and the lag in the application and availability of medical knowledge.

Describing increasing costs of health care, Gillette said that undoubtedly, the '70's will provide the nation with some form of universal health insurance for all.

The number of new physicians trained must be increased five-fold in the decade to meet our needs and since this is probably not possible to achieve, new types of health professionals must be trained, such as physician assistants. Every effort must be made toward prevention and early detection of disease, and where possible, caring for patients in doctors' offices rather than more expensive hospital facilities.

The speaker, who has held several financial management, coordination-liaison, and consultant positions in the health field, said, "The Federal Government must come forward with major financial assistance to medical and health profession schools. A major financial thrust is needed to modify our health system. That thrust should be concentrated in (1) our educational system, in order to produce sufficient numbers of health professions who will be tomorrow's leaders, understanding how and wanting to change today's system, (2) in the modification of payment methods for health care through an improved insurance system, which will cover comprehensive health care and disease prevention for all."

Continuing breakthroughs will be seen during the '70's, in genetics and its application to prevention of congenital and other defects, and the close relationship of biochemistry, physiology and other biomedical sciences to behavioral problems. Geriatric medicine will become of increasing importance. There will be growth in automated laboratories and computers in diagnosis and patient management.

At the University of Nevada, through the School of Medical Sciences and the overall Health Sciences Program, several positive steps are being taken to provide answers to many of these problems. The university plans to educate physicians in a shorter length of time, to introduce health professions students early to actual patients and their problems, to reduce the cost of educating health professionals, and to provide students with those basic and essential tools and attitudes to cope with society's ever-changing health care needs.

University of New Mexico School of Medicine

The first arthritis research grant in the nation awarded by the Kroc Foundation—the family which manages the McDonald Hamburger chain—has been made to the University of New Mexico School of Medicine. The $4,500 pilot grant will be used to study tissue damage in the joints of patients with rheumatoid arthritis.

The next symposium for the Kroc Foundation will be held in March, 1971. The symposium will discuss the mechanisms of phagocytosis — how some cells engulf other cells, especially as related to rheumatic diseases.

The medical school is co-sponsor of an arthritis clinic at Bernalillo County Medical Center.

* * * * *

Dr. James K. Weaver, adjunct associate professor of orthopedics at UNM, is principal investigator for a Food and Drug Administration research program calling for an evaluation of "poly methyl methacrylate" a special kind of bone cement currently under study by surgeons at the University of New Mexico School of Medicine.

Dr. Weaver says the bone cement has been used extensively in Europe for about 15 years as a method of "fixing" artificial hip joints in place. Since UNM doctors began studying the cement in May, it has been used in 10 hip implant operations at Bernalillo County Medical Center, a teaching facility for the UNM School of Medicine, and at Presbyterian Hospital, Albuquerque. Results of the operations have been favorable, although use of the bone cement is still considered experimental in the United States.

The bone cement consists of a powder to which a liquid catalyst is added to bring about polymerization—the formation of a dough-like compound with higher molecular weight and different physical properties.

Mixing of the powder and liquid is done during an operation, shortly before the cement is to be applied. It hardens rapidly, and the hardening process evolves heat. Temperatures up to 175 degrees F. have been recorded during the 10-minute setting process.

"Dissipation of this heat is one problem to be dealt with in using the cement in living tissues," Weaver said.

During a hip joint operation, the cement is applied to the bone two to four minutes after mixing. A plastic "socket" and steel "ball" are cemented in place, and after 10 minutes the cement hardens to fix them permanently.

Criteria for admitting patients to this type of surgery are strict. Patients with severe destruction of one or both hip joints, or patients with degenerative arthritis or rheumatoid arthritis, or other severe conditions, may be selected.

UNM surgeons hope that through continued research efforts the bone cement will receive FDA approval, thereby making procedures such as total hip replacement generally available in the United States.

University of Utah Medical Center News

By January, 1971, the new 22-bed high-risk nursery is to be ready for occupancy. The three room nursery is equipped for nine acute and thirteen intermediate beds. The unit will also contain an increased number of respirators and the newest model of intensive care isolets. The new nursery, one of the largest in the country, is capable of caring for Intermountain newborns suffering from respiratory distress, congenital malformations, newborn infections, newborn trauma, and erythroblastosis. The expanded facilities will have a nursing staff of 32 specially trained pediatric intensive care nurses.

* * * * *

The Department of Cardiology is presently involved in research to determine the electrical activity associated with heartbeat and to improve the diagnosis of heart disease by means of the electrocardiogram. These studies are presently being performed in the Cardiac Electrophysiology Laboratory which is directed by Dr. J. A. Abildskov.

Thanks to a $1,134,000 grant from the National Institutes of Health, the program, one of the largest in the country, will be able to accelerate its activities over the next five years.

Scientists do not fully understand the electrical activity which is necessary to trigger the rhythmic mechanical activity of the heart. It is known that ions—potassium and sodium—cause the electrical sequence which triggers mechanical activity by passing into and out of cells. However, what is not understood is the mechanism by which the living cells are able to transfer ions into and out of themselves and what other ions are involved.

By pinpointing this process. Dr. Abildskov and the approximately twenty doctors, graduate students, research assistants and administrative and technical personnel hope to be able to predict whether a disturbance in the heart's rhythm is about to occur. Preventive measures could then be taken.

* * * * *

Three days of Open House Celebration marked the 5th Anniversary of the new Medical Center on October 21, 22 and 23. The nearly 5,000 visitors who attended the Open House saw, through displays, films, and visits to the various departments, the latest in patient care and also current technics and research developments in the field of medicine.

Eleven-year-old Grant K. Hunsaker, Jr., the first patient to be admitted to the hospital at its opening in 1955, cut the large Medical Center-shaped cake at the birthday party which was attended by state and local dignitaries, employees, visitors, and friends of the University of Utah Medical Center.

* * * * *

Five members of the Department of Surgery and Pathology presented papers at the 3rd International Congress of the Transplantation Society at The Hague, Sept. 7-11, 1970. The five papers, presented by Drs. K. Reemtsma, L. E. Stevens, C. W. Dewitt, D. Steinmuller, and J. S. Freeman, reported on the present studies at the University of Utah dealing with transplantation and immunopathology. The University Medical Center had one of the largest representations at the conference of any of the centers throughout the world, and is considered to be a leading center in the field of immunopathology. The international journal, *Transplantation,* is edited by the Department Chairman of Pathology, Dr. Ernst Eichwald; the Associate Editor is Dr. D. Steinmuller, also of the Department of Pathology.

* * * * *

Dr. Eugene L. Bliss has been named chairman of the Department of Psychiatry to succeed Dr. C. H. Hardin Branch who retired in January of this year. Dr. Bliss has been a faculty member of the University of Utah College of Medicine since 1950.

A native of Pittsburgh, Pennsylvania, Dr. Bliss earned his A.B. in 1939 from Yale University and his M.D. in 1943 from New York Medical College. After serving his internship at Kings County Hospital, Brooklyn, New York, Dr. Bliss entered the army as Battalion Surgeon in the European Theatre of Operations. Following the war, from 1946-47 he served as Resident Fellow in Psychiatry at the Menninger Clinic and Winter V.A. Hospital, Topeka, Kansas until 1950.

Dr. Bliss' twenty year affiliation with the University of Utah College of Medicine was interrupted from 1953-55 when he took a leave of absence to accept an appointment as Assistant Chief of Psychiatry, V.A. Hospital, West Haven, Connecticut.

MEETINGS

University of Colorado School of Medicine
Postgraduate Medical Education
General Practice Review

First Session—January 18-23, 1971
Second Session—February 1-6, 1971

The 17th Annual General Practice Review features six days of broad reviews and discussions of new developments at the postgraduate level in each of six major fields of practice. Because of the increasing interest in this course, it will be presented three times in 1971: in **January,** in **February,** and again in **June.** The January and February sessions will be held in Denver, the June session will be presented in Estes Park. The content of all three sessions will be essentially the same.

Tuition fee is $100 for the full course or $25 for selected days. Advance registration required.

Surgery of the Hand

February 16-19, 1971

This four-day postgraduate course considers various aspects of trauma to the hand including reconstructive surgery. Specific subjects in the fields of rheumatoid arthritis and congenital defects are also featured.

Tuition fee is $90. Advance registration required.

For further information, contact the Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 E. Ninth Avenue, Denver, Colo. 80220.

Montana Academy of General Practice
Big Mountain Medical-Ski Conference

Whitefish, Montana

January 26-29, 1971

American Academy of Physical Medicine and Rehabilitation
Evaluation and Management of Neuromuscular Diseases

Sahara Tahoe Hotel, Lake Tahoe, Nevada

February 5-6, 1971

This postgraduate seminar is sponsored by the Departments of Postgraduate Medicine and Physical Medicine and Rehabilitation of the University of California at Davis, and by the American Academy of Physical Medicine and Rehabilitation, Chicago. It is open to physicians interested in, and practicing in physical medicine and rehabilitation, orthopaedic surgery, neurology and pediatrics, and to residents in these specialties.

Topics to be discussed in sessions on the evaluation of motor unit diseases will include "Clinical and Laboratory Evaluation of Weakness and Hypotonia" and "Clinical and Pathologic Characteristics of Central Neuronal Muscular Atrophies, Polyneuropathies, Dystrophic Myopathies, Inflammatory Myopathies and Congenital Myopathies."

Full information on registration and fee requirements is available from the program chairman, William M. Fowler, Jr., M.D., Department of Physical Medicine and Rehabilitation, University of California, Davis, Calif. 95616.

American College of Surgeons
First U.S. 1971 Sectional Meeting

Del Webb's TowneHouse, Phoenix, Ariz.

March 1-3, 1971

More than 80 lecturers will describe how to handle problems encountered in general surgery as well as in the specialties of gynecology and urology. A full-day session on the geriatric patient is also scheduled for the final day.

Hotel reservation forms may be obtained from Mr. Thomas E. McGinnis, American College of Surgeons, 55 East Erie Street, Chicago, Illinois 60611. No registration fee is charged Fellows of the College, members of the Candidate group, residents or interns who present letters of identification signed by chiefs of surgery or hospital administrator. Non-Fellows pay $15. Doctors in Federal Services pay $7.50.

The remaining 1971 Sectional Meetings are: New Orleans, March 15-17 (joint meeting for doctors-nurses); and Montreal, April 5-7.

Fourth Spring Trauma Seminar
The Nevada Committee on Trauma
of the American College of Surgeons
Improving Care of the Injured in
Rural and Suburban Communities
Caesars Palace, Las Vegas, Nevada
March 1-3, 1971

Specific attention this year is directed to education of the physician in the smaller community who is progressively seeing a greater proportion of the injured.

The faculty represents outstanding individuals in various fields of clinical experience and research. Among them are: Verne L. Brechner, MD, Professor of Anesthesia, University of California School of Medicine, Los Angeles, Calif.—Henry C. Cleveland, MD, F.A.C.S., Associate Acunical Professor of Surgery, University of Colorado, Denver, Colo.—John H. Davis, MD, F.A.C.S., Professor of Surgery, University of Vermont, Burlington, Vermont—Stanley J. Dudrick, MD, Dept. of Surgical Research, University of Pennsylvania Medical School, Philadelphia, Penn. — J. Cuthbert Owens, MD, F.A.C.S., Professor of Surgery, University of Colorado, Denver, Colo.—Basil A. Pruitt, MD, F.A.C.S., Director, Brooks Army Hospital Burn Center, San Antonio, Texas—Richard C. Schultz, MD, F.A.C.S., Plastic and Reconstructive Surgery, Des Plaines, Illinois—William B. Stromberg, MD, F.A.C.S., Associate Professor of Surgery, Northwestern University, Hand Clinic, Passauant Hospital, Chicago, Illinois.

J. W. Batdorf, MD, F.A.C.S.
General Chairman

Committee for the Seminar:
John W. Batdorf, MD, F.A.C.S., Chairman
Kirk V. Cammack, MD, F.A.C.S.
William Harris, MD, F.A.C.S.
Douglas Miller, MD, F.A.C.S.

Utah Academy of General Practice
Symposium on Adolescence
Rodeway Inn, Salt Lake City, Utah
March 12-13, 1971

For further information concerning this Symposium, contact Joe Amano, M.D., Program Chairman, Utah Academy of General Practice, 110 N. Terrace Dr., Clearfield, Utah 84015.

American Medical Association
24th National Conference on Rural Health
Community Health Programs for Tomorrow
Atlanta Marriott Motor Hotel,
Atlanta, Georgia
March 25-26, 1971

Montana Medical Association
24th Interim Meeting
Holiday Motel, Helena, Montana
April 2-3, 1971

Montana Medical Association
93rd Annual Meeting
Rainbow Hotel, Great Falls, Montana
September 16-19, 1971

University of Florida College of Medicine
Topics in Internal Medicine Course
Gainesville, Florida
May 19-21, 1971

This program wil consist of three days of intensive lectures, seminars and panels on new and controversial areas of internal medicine. For complete information and registration forms please write Mark V. Barrow, M.D., Division of Cardiology, Department of Medicine, College of Medicine, University of Florida, Gainesville, Fla. 32601.

PUBLICATION PRINTING . . .

NEWSPAPERS • MAGAZINES
ANNUALS • QUARTERLIES
BOOKLETS • BROCHURES
REPORTS • ROSTERS • PROGRAMS
HANDBOOKS • CATALOGUES

EDITORIAL ASSISTANCE • BINDING
ART DEPARTMENT • MAILING

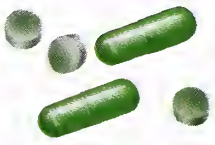
Publishers Press, Inc.
/Monitor Publications
2177 W. 7th DENVER 892-0166

The actions of the official Tincture and Extract of Belladonna result chiefly from their Atropine content . . . conclude Goodman and Gilman

THE PHARMACOLOGICAL BASIS OF THERAPEUTICS
3rd Edition, page 522

ANTROCOL®

Antrocol provides the prompt, predictable antisecretory action of the belladonna alkaloid, atropine, fortified with sedation and blended with Bensulfoid, contributing to even absorption.



Each tablet or capsule contains: Atropine sulfate, 0.324 mg.; Phenobarbital, 16 mg. (may be habit forming); Bensulfoid, 65 mg. (see white section PDR). The atropine content of Antrocol is the maximum amount the average patient can take at six hour intervals over long periods with comfort.

SUPPLIED
Tablet in bottles of 100, 500 and 5000
Capsule in bottles of 100, 500 and 1000

Caution: Federal law prohibits dispensing without prescription.

PRESCRIBING INFORMATION

Contraindicated in glaucoma. Use cautiously in prostatic hypertrophy. Side-effects of toxic dose of atropine: flushing, dryness of mouth, cycloplegia, tachycardia and urinary retention.

DOSAGE: One tablet or capsule after each meal to correct emotional stress and normalize gastric secretions. In treating peptic ulcer, doses at regular intervals up to eight (8) tablets or capsules per day to provide the proper gastric titer for healing. After ulcer has healed, one tablet or capsule after each meal to maintain a titer unfavorable to recurrence.

Clinical supply available to physicians.

WILLIAM P. POYTHRESS & CO., INC.
RICHMOND, VIRGINIA 23217
Manufacturers of Ethical Pharmaceuticals

The girth control pill

Tepanil® Ten-tab®

(continuous release form)

(diethylpropion hydrochloride)

works on the appetite not on the 'nerves'

When girth gets out of control, TEPANIL can provide sound support for the weight control program you recommend. TEPANIL reduces the appetite—patients enjoy food but eat less. Weight loss is significant—gradual—yet there is a relatively low incidence of CNS stimulation.

Contraindications: Concurrently with MAO inhibitors, in patients hypersensitive to this drug, in emotionally unstable patients susceptible to drug abuse.

Warning: Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

Adverse Reactions: Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence. As is characteristic of sympathomimetic agents, it may occasionally cause CNS effects such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported. Sympathomimetic *cardiovascular effects* reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others. *Allergic phenamena* reported include such conditions as rash, urticaria, ecchymosis, and erythema. *Gastraintestinal effects* such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosage forms: TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL: One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

T-006A / 1/70 / U.S. PATENT NO. 3,001,910

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Painful night leg cramps...

unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

One thing patients can sleep without, particularly patients with chronic disease conditions such as arthritis, diabetes or PVD, is painful night leg cramps. Although seldom the presenting complaint, night leg cramps can tie your patients up in painful knots. Now, just one tablet of QUINAMM at bedtime can usually bring an end to shattered sleep and needless suffering. Your patients will sleep restfully—gratefully—with QUINAMM, specific therapy to prevent painful night leg cramps.

Prescribing Information—Composition: Each white, beveled, compressed tablet contains: Quinine sulfate, 260 mg., Aminophylline, 195 mg. **Indications:** For the prevention and treatment of nocturnal and recumbency leg muscle cramps, including those associated with arthritis, diabetes, varicose veins, thrombophlebitis, arteriosclerosis and static foot deformities. **Contraindications:** QUINAMM is contraindicated in pregnancy because of its quinine content. **Precautions/Adverse Reactions:** Aminophylline may produce intestinal cramps in some instances, and quinine may produce symptoms of cinchonism, such as tinnitus, dizziness, and gastrointestinal disturbance. Discontinue use if ringing in the ears, deafness, skin rash, or visual disturbances occur. **Dosage:** One tablet upon retiring. Where necessary, dosage may be increased to one tablet following the evening meal and one tablet upon retiring. **Supplied:** Bottles of 100 and 500 tablets.

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Quinamm™
(quinine sulfate 260 mg., aminophylline 195 mg.)

Specific therapy for night leg cramps

OBITUARIES

Colorado

Terry J. Gromer, M.D., Denver

Colorado lost a great otolaryngologist and a tireless worker for medical societies and public health when Terry J. Gromer, MD, died Nov. 12, 1970. His death resulted from concomitant attacks of pneumonia and cholecystitis superimposed on an old diabetes.

Doctor Gromer had been a leader in both the Denver and Colorado Medical Societies for a quarter century. He was a Denver Delegate to the state House of Delegates almost continually since World War II, frequently as Chairman of the Denver delegation, with a three-year "respite" while working even harder as a member of the State Society's Board of Trustees. He was President of the Denver Medical Society for 1964 and then served five more years on that Society's Board of Trustees, the last year as its Chairman. He served on too many state and county committees to even list, several as chairman and always as a "spark plug" type of leader. This is beside six years on the State Board of Medical Examiners in the 1950's, and in 1967 Governor Love appointed him to a six-year term on the State Board of Health, where he served with vigor until his terminal illness.

Terry Gromer was born July 26, 1910, in Hugo, Colo. After grade and high school there, he entered the University of Colorado, receiving his BA degree in 1933 and his MD in 1936. He served both his internship and an ENT residency at New York's City Hospital, and came to Denver to start his specialty practice in 1940. Early in 1942 he was certified by the American Board of Otolaryngology, but in August of that year he volunteered for the Army. He had advanced to Lieut. Colonel, MC, by the time he returned to Denver from Army Air Corps duty in 1946.

He was active not only in local and state medical organizations but also in the Triological Society, the Academy of Otolaryngology, local medical clubs, the Denver Rotary Club, and Masonic orders including El Jebel Shrine. He was Associate Clinical Professor of Otolaryngology at the University of Colorado Medical School, active on the staffs of both St. Luke's and Children's Hospitals, had served on the executive boards of both hospitals and as President of the St. Luke's staff.

In spite of Terry Gromer's ability to keep up with a very busy practice and at the same time carry on multiple volunteer tasks that would have exhausted most men, he somehow managed to time his schedules to permit extensive travel, too. He attended annually the conventions of his national specialty societies and almost never missed a local or state society meeting. In addition, he exercised his hobby as an expert amateur photographer on a number of pleasure trips to foreign countries with his wife and sons.

Patients by the thousands and doctors by the hundreds literally loved Terry Gromer. They mourn his untimely passing almost equally with his immediate survivors who include his wife Edla, two sons, Terry J., Jr. of Denver, and Rex, currently serving an ENT residency in Minneapolis, and two granddaughters.

Frank Craig Johnson, MD, one of Denver's outstanding pediatricians, died in his home Thursday, November 19, 1970. He was 65.

Born December 17, 1904, Doctor Johnson received his early education in the public schools of Iowa, Kansas and Colorado. In 1926 he received his B.A. from Drake University in Iowa. After teaching school for three years in Clarion, Iowa, he enrolled in the Washington University Medical School in St. Louis receiving his M.D. in 1933. Doctor Johnson interned at the Iowa Methodist Hospital in Des Moines, and for a year he was a resident physician at the Children's Hospital, specializing in pediatrics. For several months he interrupted his medical career to work with the Civilian Conservation Corps, under the supervision of the United States Army. After this brief period, he practiced medicine in Sac City, Iowa, for a short time before coming to Denver. In Denver he became associated with Dr. Roy Forbes and Dr. Frank Gengenbach in the Children's Clinic, where he remained for the next 2½ years. In 1938 he organized his own practice in Denver, limiting himself to the field of pediatrics. On September 1, 1942, he again interrupted his career to enter the United States Army Medical Corps as a captain in the Air Corps, Medical Department. He served until February, 1946, when he retired from Active duty with the rank of lieutenant-colonel. He returned to Denver after his discharge.

Doctor Johnson was on the staff of Children's Hospital acting as chief of pediatric and internal medicine services and was a member of the executive staff of St. Anthony's Hospital. He was on the associate staffs of Mercy, St. Joseph's, Presbyterian and St. Luke's Hospitals, and was chief of the pediatric service at Denver General Hospital and an instructor in pediatrics at the University of Colorado School of Medicine.

Doctor Johnson was active in the professional and community life of Denver. He held memberships in the American Medical Association, the Colorado Medical Society, the Denver Medical

Society and the American Board of Pediatricians. He was a fellow of the American Academy of Pediatrics and a former president of the Rocky Mountain Pediatric Society.

He is survived by his wife, Helen, a son Rees Cory of Denver, and one granddaughter.

Virgil E. Sells, MD, former Denver Urologist, died November 16, 1970 at the age of 77.

Born September 15, 1893, Doctor Sells received his BA and MD degrees from the University of Colorado. While attending C.U., he suffered a leg injury playing football which resulted in the amputation of his right leg. In 1927 he was awarded a "C" Fob by the Athletic Board for the greatest service to the University that year.

Doctor Sells was a member of the American Medical Association, the Colorado Medical Society and the Denver Medical Society.

He is survived by two daughters, Mrs. Phyllis Weller of Denver and Mrs. Viola Jane Gordon of Ft. Collins; a sister Mrs. Bernice Ryon of Denver; 11 grandchildren and four great grandchildren.

Montana

Cecil Maurice Hall, MD, formerly of Great Falls, died on October 5, 1970, in Sun City, California. Doctor Hall was born on April 11, 1900, in Hinton, West Virginia.

He received his B.S. degree from the University of West Virginia in 1923 and his M.D. degree from the University of Maryland School of Medicine in 1925. Doctor Hall practiced medicine for a brief period in Plentywood, Montana, after which he undertook postgraduate training in ophthalmology. Following a tour of duty with the United States Army, he moved to Great Falls, where he was associated with the Great Falls Clinic for the practice of his medical specialty. In 1954 he established his private practice of ophthalmology in Great Falls and continued this practice until he retired in 1966. During his many years of practice, Doctor Hall maintained his active membership in the Montana Medical Association and in the American Medical Association through the Cascade County Medical Society.

Utah

Roscoe L. Draper, MD, retired Ogden physician and surgeon, died December 4, 1970. He was 81. Born July 29, 1889, in Arroya Grande, California, he was the son of Joseph Barton and Isabelle See Draper. He married Lorna Jenkins on July 14, 1925, in Ogden.

A 1919 graduate of the Stanford University Medical School, Doctor Draper had previously served that institution as an instructor in physiology. He completed his internship at the San Francisco General Hospital, and served residencies in surgery at Stanford University and the Dee Hospital in Ogden.

Commencing medical practice in Ogden in 1922, Doctor Draper also served as an instructor in first aid, anatomy, and infectious diseases for the Dee Hospital and its School of Nursing. In addition, Doctor Draper served as Chairman of the Weber County Chapter of the American Red Cross, and later as Medical Director of that organization.

A member of the Weber County, Utah State, and American Medical Associations, Doctor Draper was a Past President of both the Dee and St. Benedict Hospital medical staffs. He had also served, from 1941-47, as Medical Examiner for the Selective Service Board.

An active member of the Boy Scouts of America, Doctor Draper received the Silver Beaver Award in 1942. He had also served as a director of the Ogden First Federal Savings and Loan Association. He was a member of the Kiwanis Club; 33rd degree Mason, Unity Lodge No. 8 F&AM, Ogden Shrine Club, and York Rite of Free Masonry.

Surviving the doctor are his widow; one son, Joseph A. Draper, of Ogden, and one daughter, Mrs. M. L. (Ann) Christiansen, of Salt Lake City; also five grandchildren, and five brothers.

Newton Optical Company

Catering to Medical Profession Patronage

309 16th Street
Denver 80202

GUILD OPTICIANS

Telephone
534-8714

The pain of arthritis

relieved with MEASURIN® q. 8h. dosage

Double-strength Measurin timed-release aspirin offers a new kind of control for your arthritic patients. Each 10-grain tablet has over 6,000 microscopic reservoirs that release aspirin at a controlled rate—some right away and some later on. This means—fast relief, followed by long lasting relief. Throughout the day, Measurin gives your patients freedom from a 4-hour dosage schedule. Measurin can help your patients get a good night's sleep, uninterrupted by the need for an extra dose of aspirin. And, taken at bedtime, it also helps ease morning joint discomfort and stiffness.

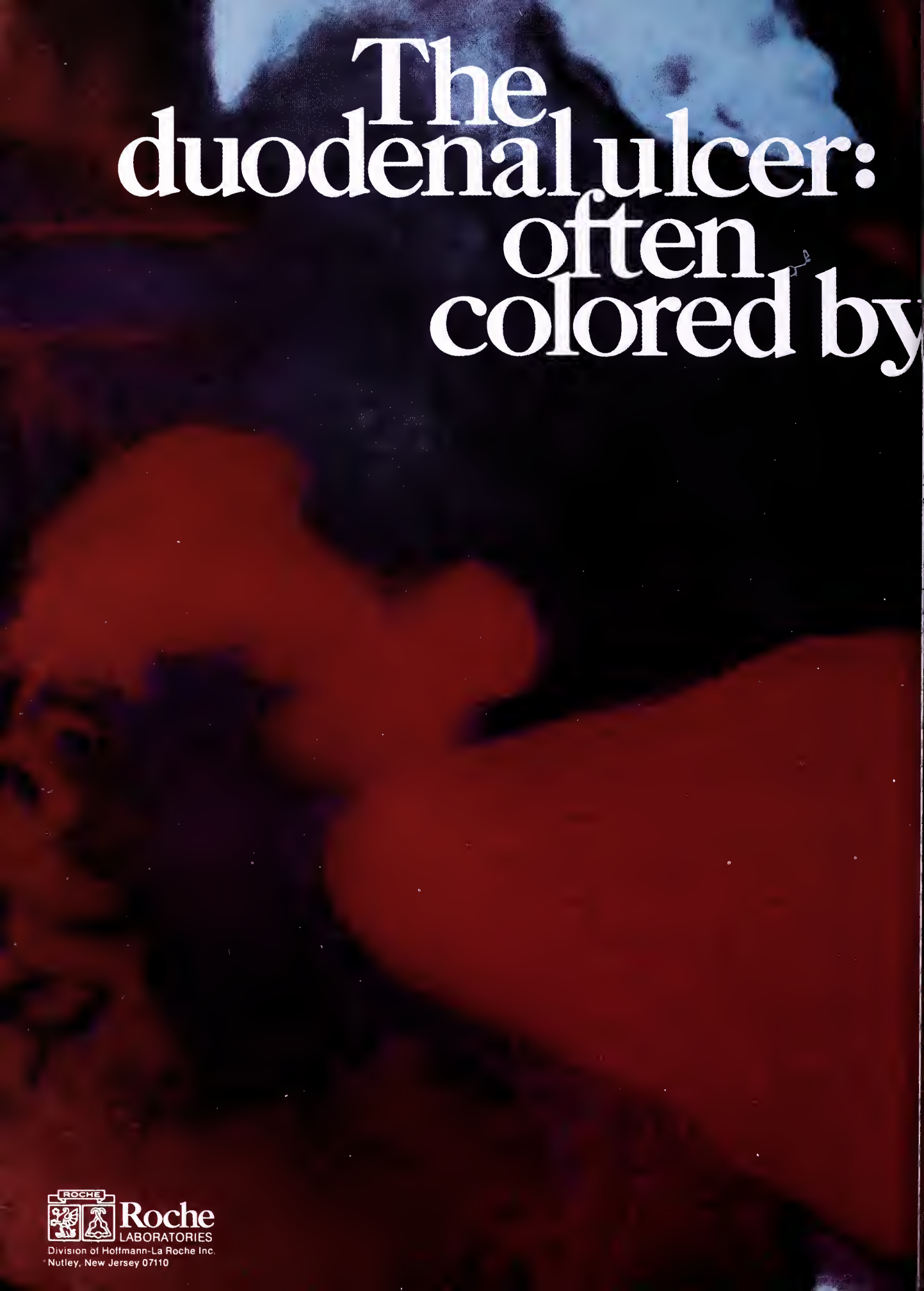
For Professional Samples write:
Breon Laboratories Inc.
Sample Fulfillment Division
P.O. Box 141
Fairview, N.J. 07022

BREON

BREON LABORATORIES INC.
90 Park Avenue, New York, N.Y. 10016
Subsidiary of Sterling Drug Inc.

MEASURIN®
TIMED-RELEASE ASPIRIN

ECONOMICAL • EFFECTIVE • LONG LASTING PAIN RELIEF
Dosage: 2 tablets followed by 1 or 2 tablets every 8 hours as required, not to exceed 6 tablets in 24 hours. For maximum nighttime pain relief and to help relieve early morning stiffness, 2 tablets at bedtime.
Available: Bottles of 12, 36 and 60 tablets.



ROCHE
Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

anxiety

Color radiography: an innovative technique

The unusual color radiograph on the opposite page was created by obtaining an original black and white roentgenogram depicting the pathology. From this original film, a duplicate was made.

The images of both the original roentgenogram and its duplicate were then superimposed on a single screen by two matching projectors, each fitted with a filter of a different color. As a result, the areas occupied by contrast material appear in a brilliant primary color, while the other areas, free of this contrast material, assume a different hue.

The projected image was then photographed, producing the color radiograph illustrated here.

Some things can be readily
rved via x-ray. In the case of this active
denal ulcer, the midportion of the
denal bulb with its radiating mucosal
s can be visualized.

Some factors can't be seen,
cially the excessive anxiety which may
e triggered or aggravated the ulcer
ck. Yet a close relationship may exist
ween the emotions and duodenal ulcer,
this relationship is the rationale
Librax.®

Librax is logical therapy because
rax combines, in a single capsule, the
l-known antianxiety action of
rium® (chlordiazepoxide HCl) and the
endable antisecretory/antispasmodic
on of Quarzan® (clidinium Br).

Since Librax, on recommended
ge, generally does not unduly interfere
mental acuity or ability to function,
usually well adapted for the majority
atients.

Keep Librax in mind for your next
denal ulcer patient who presents
ptoms of tension and anxiety.

Before prescribing, please consult
plete product information, a summary
which follows:

Indications: Indicated as adjunctive
apy to control emotional and
atic factors in gastrointestinal disorders.

Contraindications: Patients with
coma; prostatic hypertrophy and benign
der neck obstruction; known
ersensitivity to chlordiazepoxide hydro-
ride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

For the emotional/somatic problem in G.I. disorders

Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

antianxiety/anticholinergic action with 1 or 2 capsules *t.i.d.* or *q.i.d.*

WANT ADS

GENERAL PRACTICE FOR SALE. Retiring after 33 years of general practice in Grand Junction, Colorado. Office and equipment available in Medical Center. Write for details: 1270-1-3, Rocky Mountain Medical Journal, 1809 E. 18th Ave., Denver, Colorado 80218. 1270-1-3

PHYSICIAN LEAVING private practice. Excellent office equipment available including Burdick EKG, examining table, scale, etc. Buyer has access to established practice. Write P.O. Box 1270-2-3, Rocky Mountain Medical Journal, 1809 East 18th Avenue, Denver, Colorado 80218. 1270-2-3

FOR RENT: A retiring physician wishes to rent his well equipped office to another physician or specialist. Large rural community including eight towns without physicians. Town, 7,000, good hospital. All sports. Ray S. Wycoff, M.D., 106 West 7th Street, Lexington, Nebraska 68850. 171-1-2B

SPECIALISTS NEEDED TO round out comprehensive health facilities in delightful medium-sized medically isolated great plains community. We have surgeon, radiologist, and pediatrician. Need internist, OB-GYN, ENT, eye, urologist and orthopedist. We need men willing to pioneer. Call collect or write B. S. Bordman, M.D., 336-7423, Lamar, Colorado 81052. 1070-1-ind.

FOR SALE: Doctor's office building and equipment. Has been in use for 15 years for practice of Internal Medicine. 2,300 sq. ft., Lab and X-ray, large waiting room. Basement partly finished. Can be used by 1-3 M.D.'s or more. South Denver area. Doctor retiring. Reply to Box 171-2-2B, Rocky Mountain Medical Journal, 1809 E. 18th Avenue, Denver, Colorado 80218. 171-2-2B

OPPORTUNITY: GENERAL SURGEON, prefer older man, for industrial work and assist in O.R. Salary open. No investment. Lots of free time to enjoy Las Vegas area. Contact Perry O. Williams, Henderson Clinic, 67 Lake Mead Drive, Henderson, Nevada 89015. (702) 565-8701. 1170-2-6B

G.P.—DESIRE PHYSICIAN WITH SURGICAL KNOWLEDGE. Located in heart of nation's best hunting, fishing and winter sports. Exceptional opportunity. Hospital will provide offices. Contact Steve Thomas, Administrator Star Valley Hospital; Afton, Wyoming 83110. 1070-12-6B

BRO[A]DMOOR yourselves

for the pure pleasure of it all!

Discover America's finest resort facilities, dining and accommodations, here within 5,000 acres of enjoyment at the gateway to the Colorado Rockies.

The BRO[A]DMOOR Colorado Springs, Colorado

THE EMORY JOHN BRADY HOSPITAL

401 Southgate Road **COLORADO SPRINGS, COLORADO 80906** **MElrose 4-8828**

E. JAMES BRADY, M.D., *Medical Director*

CAMPBELL F. RICE, *Superintendent*

Francis A. O'Donnell, M.D.
Robert W. Davis, M.D.
Richard L. Conde, M.D.
Gilbert O. Horn, M.D.
Paul A. Draper, M.D.
Charles W. McClellan, M.D.
James E. Edwards, M.D.

For the care and treatment of Psychiatric disorders.

Individual and Group Psychotherapy and Somatic Therapies.

Occupational, diversional and outdoor activities.

X-ray, Clinical Laboratory and Electroencephalography.

Arch Laboratories
Dicarbosil 41

Breon Laboratories
Measurin 55

Broadmoor Hotel 58

Burroughs Wellcome & Co.
Empirin Compound 4

Campbell Soup Company
Soups 43

Denver Optic Company 39

Emory John Brady Hospital 58

Lederle Laboratories
Achrostatin 15

Lilly, Eli and Company
Ilosone Liquid 8

McNeil Laboratories
Parafon Forte 3

Mutual of Omaha 44

National Drug Company
Orenzyme 33
AVC 34
Tepanil 51
Quinamm 52

Newton Optical Co. 54

Picker Medical Products 10

Poythress, Wm. P. & Company
Antrocol 50

Public Service Company of Colorado 59

Publishers Press, Inc./
Monitor Publications 49

Riker Laboratories
Norflex 28

Roche Laboratories
Menrium ..... Cover II, Page 1
Efudex 6-7
Librax 56-57
Valium ..... Cover IV

Searle, G. D. & Company
Demulen ..... 60, Cover III

Stuart Pharmaceuticals
Mylanta 5

INVESTOR owned
CUSTOMER oriented

Public Service Company of Colorado

A distinctive combination containing 1 mg. of ethynodiol diacetate, Searle's unique progestin with an unmatched record of acceptance in oral contraception, and 50 mcg. of ethinyl estradiol. The same low incidence of breakthrough bleeding and of other side effects you have come to appreciate with ethynodiol diacetate and mestranol plus all the convenient dosage schedule and packaging features you expect from Searle. The choice is yours!

MIXED CITY
Library
College of Physicians
19 South 22nd Street
Philadelphia, Pennsylvania 19103

Rocky Mountain Medical Journal

LIBRARY OF THE
COLLEGE OF PHYSICIANS
OF PHILADELPHIA
FEB 25 1971

February 1971

MDS

VOLUME 68 • NUMBER 2

COLORADO • MONTANA • NEVADA • NEW MEXICO • UTAH • WYOMING

Menrium® treats the menopausal symptoms that bother him most.

Roche
LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

His wife has a lot of different menopausal symptoms, but only a few really irritate *him*. Her hot flashes, her vertigo, her palpitations—that's *her* problem. What really bothers him is her nervousness, her irritability and her excessive anxiety, often expressed by endless "book-shuffling, chain-smoking, reading-lamp" insomnia!

Menrium takes care of hot flashes, vertigo, palpitations in most menopausal women. Menrium provides the well-known antianxiety action of chlordiazepoxide (Librium®) and water-soluble esterified estrogens. It therefore relieves more symptoms than either component separately. It takes care of the vasomotor symptoms as well as the emotional symptoms. This means the symptoms that bother his wife most. And the symptoms that irritate him most.

So, to help them both get through *her* menopause, remember Menrium.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Management of manifestations generally associated with the menopausal syndrome—anxiety and tension, vasomotor complaints and hormonal deficiency states.

Contraindications: Women with cancer of breast or genitalia, except inoperable cases, and those with known hypersensitivity to chlordiazepoxide and/or esterified estrogens.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Exclude other possible causes of menopausal syndrome manifestations, such as pregnancy. Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering to addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions) similar to those seen with barbiturates have been reported following discontinuance of chlordiazepoxide HCl. Potential benefits of use in pregnancy, lactation or women of childbearing age should be weighed against possible hazards to mother and child. Clinical data inadequate on safety in pregnancy.

Precautions: In elderly and debilitated patients, limit dosage to smallest effective amount of chlordiazepoxide (initially 10 mg or less per day) to preclude ataxia or oversedation; increase gradually as needed and tolerated. Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects—particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in patients with impaired renal or hepatic function. Paradoxical reactions to chlordiazepoxide (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in the treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation very rarely reported in patients receiving Librium® (chlordiazepoxide) and oral anticoagulants.

Adverse Reactions: Untoward effects seen with either compound alone may occur with Menrium. With chlordiazepoxide, drowsiness, ataxia and confusion reported in some patients, particularly in the elderly and debilitated; while usually avoided by proper dosage adjustment, these are occasionally observed at lower dosage ranges. Also reported have been a few instances of syncope; isolated occurrences of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido, and occasional reports of blood dyscrasias, including agranulocytosis, jaundice and hepatic dysfunction. Periodic blood counts and liver function tests advisable during protracted treatment. Changes in EEG patterns (low-voltage fast activity) observed during and after chlordiazepoxide treatment.

With estrogens, headache, nausea and vomiting, anorexia, gastrointestinal discomfort, dysuria and urinary frequency, jitteriness, breast engorgement, formation of breast cysts, skin rashes and pruritus occasionally seen. Administration may also be associated with uterine bleeding and/or followed by withdrawal bleeding.

Usual Dosage: One tablet t.i.d. for 21 days, followed by one-week rest periods.

Menrium® T.I.D.

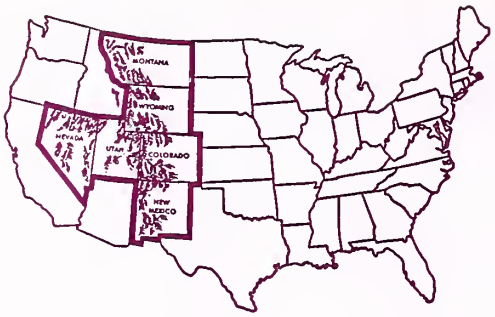
5 mg chlordiazepoxide	5-2	0.2 mg water-soluble esterified estrogens
5 mg chlordiazepoxide	5-4	0.4 mg water-soluble esterified estrogens
10 mg chlordiazepoxide	10-4	0.4 mg water-soluble esterified estrogens

ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

FEBRUARY 1971

Volume 68, Number 2



Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222 (area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204

Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

Address all manuscripts, organization and other news items relating to editorial content to appropriate state editor, see below.

Editorials

25 THE "ANTI-SCIENCE ERA" IN WASHINGTON

25 ECOLOGY AND THE DOCTOR

26 HAZARD OF PACEMAKER FUNCTION

Articles

27 MOOD ALTERING AGENT USE IN AMERICA — *V. Alton Dohner, MD, Seattle, Washington*

36 COMPROMISED RENAL FUNCTION SECONDARY TO RETROPERITONEAL HEMORRHAGE — *George Pappas, MD, Jorge Guillen, MD and Hywel Davies, MD, Denver*

38 INTERPOSITION OF THE COLON BETWEEN THE LIVER AND DIAPHRAGM — *Theodore R. Lenz, MD, Pueblo, Colorado*

40 ABORTION AND EUTHANASIA: A REPLY — *Richard D. Lamm and Steven Davison, Denver*

43 A SYSTEM FOR CONTINUING MEDICAL EDUCATION — *Donald L. Erickson, M.Ed, MPH, Cheyenne, Wyoming*

48 CHILDREN'S HOSPITAL, DENVER NEONATAL INFECTION DUE TO GROUP B STREPTOCOCCUS — *Ralph A. Franciosi, MD; Robert A. Zimmerman, PhD; Blaise E. Favara, MD and Joseph Butterfield, MD, Denver*

55 THE PROS AND CONS OF NATIONAL HEALTH INSURANCE — *Drew M. Petersen, MD, Ogden, Utah*

60 COLORADO TICK FEVER — *Michael P. Earnest, John C. Breckinridge, Robert J. Barr, D. Bruce Francy and Cecil S. Mollohan, Denver*

63 TUMOR CONFERENCE FROM UNIVERSITY OF COLORADO CHEMODECTOMAS OF THE EAR — *Edited by Erick R. Ratzer, MD, Denver*

Organization

72 COLORADO WINTER CLINICS PROGRAM

73 NEVADA - PROCEEDINGS OF THE HOUSE OF DELEGATES

Features

7 LETTERS TO THE EDITOR

70 MATERNAL MORTALITY - FULMINATING TOXEMIA

80 BOOK CORNER

81 MEETINGS

76 OBITUARIES

83 NATIONAL AFFAIRS

87 MEDICAL SCHOOL NOTES

90 WANT ADS

91 OFFICERS PAGE

93 INDEX TO ADVERTISERS

OUR COVER PHOTO

This little church, in the mountain village of Questa, north of Taos, New Mexico, was built in the 19th century. It follows the typical Southwestern style of mission architecture. Credit: New Mexico Department of Development.

EDITORIAL BOARD

Colorado: Douglas W. Macomber, M.D., Scientific Editor, 1800 High St., Denver (Chairman of the Board); Carl H. McLauthlin, M.D., Assistant Scientific Editor, 510 Republic Bldg., Denver.

Montana: Gerald A. Diettert, M.D., Scientific Editor, 501 W. Broadway, P. O. Box 1307, Missoula, Montana 59801; L. Russell Hegland, Associate Editor, 1236 North 28th Street, Billings.

Nevada: Harry J. McKinnon, M.D., Scientific Editor, 3196 Maryland Pkwy. S., Las Vegas; Wesley W. Hall, M.D., Assistant Scientific Editor, 607 N. Arlington Ave., Reno; Nelson B. Neff, Associate Editor, 3660 Baker Lane, Reno.

New Mexico: Marcus J. Smith, M.D., Scientific Editor, Coronado Bldg., Santa Fe; William S. Curran, M.D., Assistant Scientific Editor, 920 Stanford NE, Albuquerque; Ralph R. Marshall, Associate Editor, 3010 Monte Vista Blvd., NE, Albuquerque.

Utah: Alan E. Lindsay, M.D., Scientific Edito 699 East South Temple, Salt Lake City; Ho W. Brewster, Associate Editor, 42 South Fif East Street, Salt Lake City.

Wyoming: Francis A. Barrett, M.D., Scientif Editor, 1616 E. 19th St., Cheyenne; Robe Smith, Associate Editor, P. O. Box 1387, Che enne.

Donald G. Derry, Managing Editor

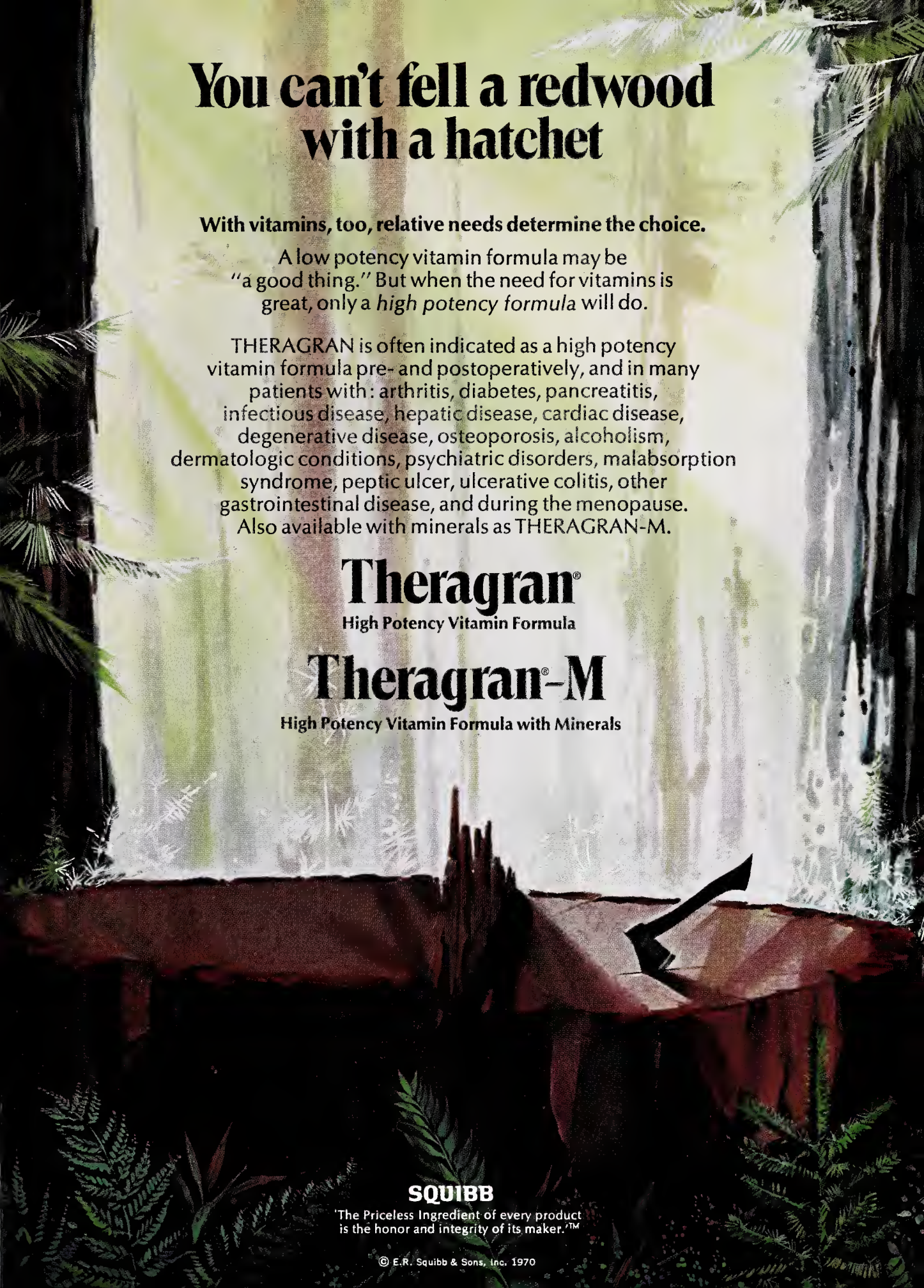
Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations: It is the Official Journal of the Rocky Mountain Medical Conference and those medical societies who are represented on the Editorial Board listed above.

Advertising: National representative: State Journals West, 693 Sutt Street, San Francisco, California 94102.

Subscription: $7.00 per year in advance, postpaid in the United Stat and its possessions; single copy 60c plus postage. Subscription is i cluded in medical society dues of sponsoring state medical organiz tions.

Copyright: This Journal is copyright, 1971, by the Colorado Medic Society. Requests for permission to reproduce anything from t columns of this Journal should be addressed to the Journal Offic

Second class postage paid at Denver, Colorado


You can't fell a redwood with a hatchet
With vitamins, too, relative needs determine the choice.
A low potency vitamin formula may be "a good thing." But when the need for vitamins is great, only a high potency formula will do.
THERAGRAN is often indicated as a high potency vitamin formula pre- and postoperatively, and in many patients with: arthritis, diabetes, pancreatitis, infectious disease, hepatic disease, cardiac disease, degenerative disease, osteoporosis, alcoholism, dermatologic conditions, psychiatric disorders, malabsorption syndrome, peptic ulcer, ulcerative colitis, other gastrointestinal disease, and during the menopause. Also available with minerals as THERAGRAN-M.
Theragran®
High Potency Vitamin Formula
Theragran®-M
High Potency Vitamin Formula with Minerals
SQUIBB
'The Priceless Ingredient of every product is the honor and integrity of its maker.'™
© E.R. Squibb & Sons, Inc. 1970

Safety isn't everything in an antibiotic.

Until you need it.

Such as the time when tooth staining becomes a matter of consideration.

Or the patient has impaired kidney function.

Or there is a potential for a severe allergic reaction with a penicillin-sensitive patient.

There is no guarantee of safety, even with Erythrocin.

Mild allergic reactions, abdominal discomfort and rare monilial overgrowth may occur. But serious reactions are extremely rare. And after 18 years, there are no known toxic effects on vital organs, bone, blood, nerves or teeth.

We'll ask *you* the question. Have you ever seen a severe reaction with Erythrocin? 101281

ABBOTT

ERYTHROCIN®

ERYTHROMYCIN, ABBOTT

The potency you need -the safety you want

See next page for brief summary, listing indicated organisms, precautions, etc.

Erythrocin®

(ERYTHROMYCIN, ABBOTT)

Brief Summary

Indications

Erythrocin is indicated against gram-positive cocci — staphylococci (most strains), pneumococci and streptococci (including enterococci). Active against other pathogens, such as *Corynebacterium, Hemophilus, Clostridium, Neisseria,* and *Treponema pallidum,* the agents causing trachoma and lymphogranuloma venereum and primary atypical pneumonia caused by *Mycoplasma pneumoniae* (Eaton agent). Establish susceptibility of pathogenic organism when practical. Maintain therapeutic levels for ten days in the treatment of streptococcal infections to help prevent rheumatic fever and glomerulonephritis. Also consider local measures or surgery whenever indicated.

Contraindications

Known hypersensitivity to erythromycin. I.M. preparation also contraindicated in patients hypersensitive to the "caine" type of local anesthetics.

Precautions, Side Effects

Occasionally abdominal discomfort, cramping, nausea or vomiting may occur; generally controlled by reduction of dosage. Mild allergic reactions, such as urticaria and other skin rashes, may occur. Serious allergic reactions have been extremely infrequent; if hypersensitivity is encountered consider appropriate countermeasures, e. g., epinephrine, steroids, etc., and withdraw drug. The rare possibility of overgrowth of nonsusceptible organisms should be kept in mind; if it occurs withdraw drug and institute appropriate treatment. Local venous discomfort, generally mild, may occur with I. V. administration. I.M. preparation is suitable for deep intramuscular administration only; restrict use in children with small muscle mass. A mild transient local discomfort sometimes occurs following rectal insertion of Erythrocin Suppositories; discontinue if significant discomfort persists.

Administration and Dosage

I. ORAL: In adults with mild to moderate infections caused by readily-susceptible organisms 1.0 Gm. daily; more severe infections or those caused by less susceptible organisms 2.0 Grams daily; unusually severe infections up to 4 or more Gm./day. Daily dose in children is 15 to 25 mg./lb./day depending upon severity of infection. Daily dose should be administered in divided doses at 4-to-6 hour intervals. Continue treatment for at least 48 hours after symptoms have subsided and temperature has returned to normal. In fulminating or life-threatening infections, a parenteral form of erythromycin is preferred.

II. PARENTERAL: Intravenous administration may be continuous or intermittent (6 to 8 hour intervals); 1 to 4 Gm. daily in adults; 15 to 25 mg./lb./day in children, depending upon severity of infection. Recommended I.M. dose is 100 mg. (2 ml.) for adults, 50 mg. (1 ml.) for children 30 lbs. or more and 1.4 to 1.8 mg./lb. in smaller children. Injections are usually given at 6 to 8 hour intervals; may be given at 4 to 6 hour intervals for severe infections.

III. RECTAL: Following therapeutic doses are recommended in children: to 20 lbs., 1-125 mg. suppository every 8 hours; 20 to 40 lbs., 1-125 mg. suppository every 6 hours.

Change to oral therapy as soon as practicable.

101281

To The Editor:

I hope you will be able to use the following letter in the Journal, as I think Ed Panter's action is worth some notice. Lately, thousands of words have been written regarding conservation of our natural resources, but preventive action on the part of the public is lagging. If we want our children and grandchildren to enjoy some of the outdoor pleasures we indulged in while growing up, it is essential that we show a definite concern.

The following letter was addressed to Dr. Panter by Lee L. Peterson, assistant vice president of the Security Bank and Trust Co. of Alamogordo, New Mexico:

"Recently I was in Colorado for the Big Game Season and, while there, I included some trout fishing on the famous Colorado River. The Colorado is really a beautiful stream and most enjoyable to fish, and since I am a member of "Trout Unlimited" I was especially pleased to catch a large Rainbow which weighed slightly more than 4½ pounds.

"This beautiful trout had two tags in its tail with the name "Panter" on them, so I made inquiries in Kremmling and Granby about the name and the person the tags belonged to. The man in the sporting goods store in Granby told me that the only Panter he knew of was a doctor in Denver who fished in that area and belonged to a club.

"On my way home on October 25, I stopped in Denver long enough to get your name and address from the telephone book, but was unable to reach you by phone. Consequently, I decided to write to you in hopes that the enclosed tags belong to you.

"I caught this fish on a spinner in the big hole where the Blue River comes into the Colorado near Kremmling, and I certainly congratulate you for having landed him twice, and long enough to place the tags. This, in my opinion, is what more sportsmen should do, instead of depleting the streams."

Dr. Panter never loses an opportunity to preach conservation and this letter is a dramatic illustration of what he does about it. We congratulate him and are proud of our colleagues who are good sportsmen as well as citizens.

O. S. Philpott, M.D.

To the Editor:

The apathy of most Americans to the problems of the environment is unbelievable. There seems to be lots of talk, but little action — especially by those who are in the best position to do something about it.

The following quote is from the front page of the *Rocky Mountain News*, January 10, 1971. A large, thick, black fuel oil slick was being washed onto the shores of San Francisco Bay. "Hundreds of persons . . . worked to save the Bay itself from the huge oil slick," with straw and rakes attempting to scoop up the globs of oil before it could settle on the beaches.

"It's the freaks who are out here," said Nancy Shelly, 24, of Berkeley, as she helped shove straw on San Francisco's Ocean Beach. "All the so-called All-Americans don't give a damn."

Signed,
An Awakening American

You Can Order REPRINTS

of any feature or advertisement appearing in

The Rocky Mountain Medical Journal.

Orders must be placed within 15 days after date of publication. Minimum charge applies for 100 copies or less.

The cost is very reasonable.

For further information write to—

The Rocky Mountain Medical Journal

1809 East 18th Avenue

Denver, Colorado 80218

Nothing new about Synirin other than ...it's a stable, uncoated, fast disintegrating tablet of aspirin with pentobarbital potentiating the aspirin analgesia.

Synirin®

ASPIRIN 5 GR.—PENTOBARBITAL 1/8 GR.

ETHICAL ANALGESIA (economical if prescribed in 100 units with privilege of refills)

PRESCRIBING INFORMATION: To relieve tension headaches and arthritic pains, 2 tablets q 4 h. Aspirin and pentobarbital begin their action promptly, continuing for about 4 hours. The small pentobarbital content gives no perceptible sedation. Pentobarbital is destroyed by the body and there is no accumulation. Synirin will supply any aspirin therapy with equal safety. Use aspirin with caution in peptic ulcer.

EACH UNCOATED TABLET CONTAINS:

Aspirin .....325 mg. (5 gr.)
Pentobarbital* .....8 mg. (1/8 gr.)
*May be habit forming.

Federal law prohibits dispensing without prescription

DISPENSED IN BOTTLES OF 100 AND 1000 TABLETS

WILLIAM P. POYTHRESS & COMPANY, INC.
RICHMOND, VIRGINIA 23261
Manufacturers of Ethical Pharmaceuticals Since 1856

A clinical supply of this new aspirin formulation may be requested.

Picture of low back pain

treated with Parafon Forte® TABLETS

Paraflex® (chlorzoxazone)* 250 mg.
Tylenol® (acetaminophen) 300 mg.

Parafon Forte tablets help to relieve pain, restore mobility... stop pain-spasm feedback

Here is why. PARAFON FORTE provides:

a nonsalicylate analgesic equal to aspirin for relief of pain,[1,2] yet unlikely to cause the gastric irritation[2,3] or increased bleeding time[4] associated with aspirin therapy.

and a skeletal muscle relaxant shown in extensive clinical studies to be useful in a variety of low back disorders[5-7] ...but which is not an antihistamine or tranquilizer derivative and is unlikely to produce a tranquilizing or sedative effect.[8]

Prescribe PARAFON FORTE for effective spasmolysis and analgesia in acute sprains, strains and myalgias of the lower back, including acute exacerbations of chronic conditions. Your patients will appreciate the restored comfort and freedom of movement it usually provides.

Contraindications: Sensitivity to either component. ***Warnings:*** *Usage in Pregnancy*—Use in woman of child-bearing potential only when potential benefits outweigh possible risks. ***Precautions:*** Exercise caution in patients with known allergies or history of drug allergies. If a sensitivity reaction or signs or symptoms suggestive of liver dysfunction are observed, the drug should be stopped. ***Adverse Reactions:*** Occasionally, drowsiness, dizziness, lightheadedness, malaise, overstimulation or gastrointestinal disturbances may be noted; rarely, allergic-type skin rashes, petechiae, ecchymoses, angioneurotic edema or anaphylactic reactions. In rare instances, *Paraflex* (chlorzoxazone) may possibly have been associated with gastrointestinal bleeding. While *Paraflex* (chlorzoxazone) and chlorzoxazone-containing products have been suspected as being the cause of hepatic toxicity in approximately eighteen patients, it was not possible to state that the dysfunction was or was not drug induced. ***Usual Adult Dosage:*** Two tablets q.i.d. ***Supplied:*** Scored, light green tablets, imprinted "McNEIL" —bottles of 100.

References: **1.** Batterman, R. C., and Grossman, A. J.: Fed. Proc. *14*:316, 1955. **2.** Goodman, L. S., and Gilman, A., ed.: The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970. **3.** Vickers, F. N.: Gastroint. Endosc. *14*:94, 1967. **4.** Mielke, C. H., Jr., and Britten, A. F. H.: New Engl. J. Med. *282*:1270, 1970 (Corresp.). **5.** Kestler, O. C., and Gyurik, J.: Industr. Med. Surg. *21*:372, 1962. **6.** Forster, S., et al.: Amer. J. Orthop. *2*:285, 1960. **7.** Data on file, McNeil Laboratories, Inc. **8.** Friend, D. G.: Clin. Pharmacol. Ther. *5*:871, 1964.

*U.S. PATENT NO. 2,895,877

McNEIL LABORATORIES, INC., FT. WASHINGTON, PA. 19034

McNEIL

in cardiac edema

Dyazide®

Trademark

Each capsule contains 50 mg. of Dyrenium® (brand of triamterene) and 25 mg. of hydrochlorothiazide.

gets the water out

spares the potassium

Before prescribing, see complete prescribing information in SK&F literature or *PDR*.

Indications: Edema associated with congestive heart failure, cirrhosis of the liver, the nephrotic syndrome, late pregnancy; also steroid-induced and idiopathic edema, and edema resistant to other diuretic therapy. 'Dyazide' is also indicated in the treatment of mild to moderate hypertension.

Contraindications: Pre-existing elevated serum potassium. Hypersensitivity to either component. Continued use in progressive renal or hepatic dysfunction or developing hyperkalemia.

Warnings: **Do not use dietary potassium supplements or potassium salts unless hypokalemia develops or dietary potassium intake is markedly impaired.** Enteric-coated potassium salts may cause small bowel stenosis with or without ulceration. Hyperkalemia (>5.4 mEq/L) has been reported in 4% of patients under 60 years, in 12% of patients over 60 years, and in less than 8% of patients overall. Rarely, cases have been associated with cardiac irregularities. Accordingly, **check serum potassium during therapy, particularly in patients with suspected or confirmed renal insufficiency (e.g., certain elderly or diabetics). If hyperkalemia develops, substitute a thiazide alone. If spironolactone is used concomitantly with 'Dyazide', check serum potassium frequently**—they can both cause potassium retention and sometimes hyperkalemia. Two deaths have been reported in patients on such combined therapy (in one, recommended dosage was exceeded; in the other, serum electrolytes were not properly monitored). Observe regularly for possible blood dyscrasias, liver damage or other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving Dyrenium (triamterene, SK&F). Rarely, leukopenia, thrombocytopenia, agranulocytosis, and aplastic anemia have been reported with the thiazides. Watch for signs of impending coma in acutely ill cirrhotics. Thiazides are reported to cross the placental barrier and appear in breast milk. This may result in fetal or neonatal hyperbilirubinemia, thrombocytopenia, altered carbohydrate metabolism and possibly other adverse reactions that have occurred in the adult. When used during pregnancy or in women who might bear children, weigh potential benefits against possible hazards to fetus.

Precautions: Do periodic serum electrolyte and BUN determinations. Do periodic hematologic studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in postsympathectomy patients. The following may occur: hyperuricemia and gout, reversible nitrogen retention, decreasing alkali reserve with possible metabolic acidosis, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), digitalis intoxication (in hypokalemia). Use cautiously in surgical patients. Concomitant use with antihypertensive agents may result in an additive hypotensive effect.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis; rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting (may indicate electrolyte imbalance), diarrhea, constipation, other gastrointestinal disturbances. Rarely, necrotizing vasculitis, paresthesias, icterus, pancreatitis, and xanthopsia have occurred with thiazides alone.

Supplied: Bottles of 100 capsules.

SK&F

SK&F Co., Carolina, P.R. 00630
a subsidiary of Smith Kline & French Laboratories

THE MUSCLE RELAXANT THAT DOES WHAT'S EXPECTED

AND LESS

Some skeletal muscle relaxants cause generalized muscle weakness. Not Norflex. Some require dosages as high as eight tablets a day for effective relief. Norflex relaxes only the muscles in spasm on one tablet b.i.d. Norflex checks pain. Reduces rigidity. Restores mobility. Has less side effects too. So Norflex does what's expected. And does it with less inconvenience.

Norflex®
(ORPHENADRINE CITRATE)
1 TABLET (100 mg.) B.I.D.

Indications: Acute spasm of voluntary muscles, regardless of location; especially post-traumatic, discogenic, and tension spasms.
Dosage: Two tablets per day for adults, regardless of weight or sex; one in the morning and one in the evening.
Contraindications: Contraindications for Norflex are due to the anticholinergic action of orphenadrine. Norflex should not be used in patients with glaucoma, pyloric or duodenal obstruction, stenosing peptic ulcers, prostatic hypertrophy or obstruction at the bladder neck, cardiospasm (megaesophagus) and myasthenia gravis. It should be used with caution in patients with tachycardia.
Since mental confusion, anxiety and tremors have been reported in patients receiving orphenadrine and propoxyphene concurrently, it is recommended that Norflex not be given in combination with propoxyphene (Darvon®).
Side Effects: Side effects of Norflex (orphenadrine citrate) are mainly due to the mild anticholinergic action of orphenadrine, and are usually associated with higher dosage. Dryness of the mouth is the first side effect to appear. When the daily dose is increased, possible side actions include: tachycardia, palpitation, urinary hesitancy or retention, blurred vision, dilatation of the pupil, increased ocular tension, weakness, nausea, vomiting, headache, dizziness, constipation, drowsiness and, rarely, urticaria and other dermatoses. Infrequently, an elderly patient may experience some degree of mental confusion. These mild side effects can usually be eliminated by reduction in dosage. Two cases of aplastic anemia associated with the use of Norflex tablets have been reported. No causal relationship has been established.
For full information, see Package Insert or P.D.R.

Riker Laboratories, Inc. SUBSIDIARY OF 3M COMPANY
NORTHRIDGE, CALIFORNIA 91324
Sponsor of Riker-Service—The Complimentary Classified Service for Physicians

2
3
4
5
6

the night shift of depression... insomnia

Depression is a 24-hour-a-day problem. And insomnia is often its nocturnal expression. In fact, insomnia may be a key symptom in establishing the diagnosis of depression.

ELAVIL HCl (Amitriptyline HCl, MSD) may prove quite helpful when you have arrived at such a diagnosis. Unlike psychic energizers or agents that merely elevate mood, ELAVIL HCl embodies a mild antianxiety action which manifests itself even before the fundamental antidepressant activity of the drug becomes evident. Daytime drowsiness occurs in some patients, usually within the first few days of therapy.

NOTE: Not recommended during the acute recovery phase following myocardial infarction. Patients with cardiovascular disorders should be watched closely; arrhythmias, sinus tachycardia, and prolongation of the conduction time have been reported, particularly with high doses; myocardial infarction and stroke have been reported with drugs of this class. Close supervision is required for hyperthyroid patients or those receiving thyroid medication. Concurrent electroshock therapy may increase the hazards of therapy; such treatment should be limited to patients for whom it is essential. Discontinue the drug several days before elective surgery if possible.

Contraindications: Known hypersensitivity. Should not be given concomitantly with or within at least 14 days following the discontinuance of a monoamine oxidase inhibitor. Then initiate dosage of amitriptyline HCl cautiously with gradual increase in dosage until optimum response is achieved. Not recommended during the acute recovery phase following myocardial infarction or for patients under 12 years of age.
Warnings: May block the antihypertensive action of guanethidine or similarly acting compounds. Should be used with caution in patients with a history of seizures or urinary retention, or with narrow-angle glaucoma or increased intraocular pressure. Patients with cardiovascular disorders should be watched closely; arrhythmias, sinus tachycardia, and prolongation of the conduction time have been reported, particularly with high doses; myocardial infarction and stroke have been reported with drugs of this class. Close supervision is required for hyperthyroid patients or those receiving thyroid medication. May impair mental and/or physical abilities required for performance of hazardous tasks, such as operating machinery or driving a motor vehicle. Safe use during pregnancy and lactation has not been established; in pregnant patients, nursing mothers, or women who may become pregnant, weigh possible benefits against possible hazards to mother and child.
Precautions: When used to treat the depressive component of schizophrenia, psychotic symptoms may be aggravated; in manic-depressive psychosis, depressed patients may experience a shift toward the manic phase, and paranoid delusions, with or without associated hostility, may be exaggerated; in any of these circumstances, it may be advisable to reduce the dose of amitriptyline HCl, or to use a major tranquilizing drug, such as perphenazine, concurrently.
When given with anticholinergic agents or sympathomimetic drugs, close supervision and careful adjustment of dosages are required. May enhance the response to alcohol and the effects of barbiturates and other CNS depressants. The possibility of suicide in depressed patients remains during treatment and until significant remission occurs; this type of patient should not have easy access to large quantities of the drug. Concurrent electroshock therapy may increase the hazards of therapy; such treatment should be limited to patients for whom it is essential. Discontinue the drug several days before elective surgery if possible.
Adverse Reactions: *Note:* Included in this listing are a few adverse reactions not reported with this specific drug. However, pharmacological similarities among the tricyclic antidepressant drugs require that each reaction be considered when amitriptyline is administered.
Cardiovascular: Hypotension, hypertension, tachycardia, palpitation, myocardial infarction, arrhythmias, heart block, stroke. *CNS and Neuromuscular:* Confusional states; disturbed concentration; disorientation; delusions; hallucinations; excitement; anxiety; restlessness; insomnia; nightmares; numbness, tingling, and paresthesias of the extremities; peripheral neuropathy; incoordination; ataxia; tremors; seizures; alteration in EEG patterns; extrapyramidal symptoms. *Anticholinergic:* Dry mouth, blurred vision, disturbance of accommodation, constipation, paralytic ileus, urinary retention, dilatation of urinary tract. *Allergic:* Skin rash, urticaria, photosensitization, edema of face and tongue. *Hematologic:* Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia. *Gastrointestinal:* Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, parotid swelling. *Endocrine:* Testicular swelling and gynecomastia in the male, breast enlargement and galactorrhea in the female, increased or decreased libido. *Other:* Dizziness, weakness, fatigue, headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, drowsiness, jaundice. *Withdrawal Symptoms:* Abrupt cessation of treatment after prolonged administration may produce nausea, headache, and malaise; these are not indicative of addiction.
How Supplied: Tablets containing 10 mg and 25 mg amitriptyline HCl, in single-unit packages of 100 and bottles of 100, 1000, and 5000; tablets containing 50 mg amitriptyline HCl, in single-unit packages of 100 and bottles of 100 and 1000; for intramuscular use, in 10-cc vials containing per cc: 10 mg amitriptyline HCl, 44 mg dextrose, and 1.5 mg methylparaben and 0.2 mg propylparaben as preservatives.

For more detailed information, consult your MSD representative or see the Direction Circular. Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, Pa. 19486

when the diagnosis is depression

ELAVIL® HCl
(AMITRIPTYLINE HCl | MSD)

MSD MERCK SHARP & DOHME

ROCHE

Widowed and alone
(with irritable colon syndrome)

Loss of a loved one. Loneliness. Job insecurity. The high correlation between stress factors in a patient's life and irritable colon syndrome is a matter of clinical experience.

Deal with the stress factor

Drug therapy for these patients might therefore be expected to do two things:
(1) allay anxiety associated with the irritable colon syndrome, and
(2) relax colonic spasm while checking hypermotility.
These are precisely the actions that define the effect of Librax.®

Librax: more than an antispasmodic

Librax is the only drug that delivers the tranquilizing action of Librium® (chlordiazepoxide HCl) plus the potent anticholinergic action of Quarzan® (clidinium Br). The anticholinergic helps control gastrointestinal hypermotility and spasm—the immediate cause of the patient's complaint. At the same time, the action of Librium helps ease the anxiety that may have triggered the G.I. distress in the first place.

1 or 2 capsules, 3 or 4 times daily

The dosage of Librax should be adjusted to achieve optimum individual response—within the range of 1 or 2 capsules, 3 or 4 times daily.
In most cases, a satisfactory effect is obtained with 1 capsule before each meal and 2 at bedtime. Librax: #60, sig. 1 *a.c.* and 2 *h.s.*

Before prescribing, please consult complete product information, a summary which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

Roche Laboratories
Division of Hoffmann-La Roche, Inc.
Nutley, N.J. 07110

As adjunctive therapy Dual-action Librax®

Each capsule contains
5 mg chlordiazepoxide HCl
and 2.5 mg clidinium Br.

Calms anxiety, calms the G.I. tract

"For all the happiness mankind can gain
It is not in pleasure,
but in rest from pain."

John Dryden

Give your patients rest from pain

Empirin® Compound with Codeine Phosphate gr. 1/2, No. 3

Each tablet contains: Codeine Phosphate gr. ½ (Warning—May be habit forming), Phenacetin gr. 2½, Aspirin gr. 3½, Caffeine gr. ½.

B. W. & Co. narcotic products are Class "B", and as such are available on oral prescription, where State law permits.

Complete literature available on request from Professional Services Dept. PML.

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.

The girth control pill

Tepanil® Ten-tab®

(continuous release form)

(diethylpropion hydrochloride, N.F.)

works on the appetite not on the 'nerves'

When girth gets out of control, TEPANIL can provide sound support for the weight control program you recommend. TEPANIL reduces the appetite—patients enjoy food but eat less. Weight loss is significant—gradual—yet there is a relatively low incidence of CNS stimulation.

Contraindications: Concurrently with MAO inhibitors, in patients hypersensitive to this drug; in emotionally unstable patients susceptible to drug abuse.

Warning: Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

Adverse Reactions: Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence. As is characteristic of sympathomimetic agents, it may occasionally cause *CNS effects* such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported. Sympathomimetic *cardiovascular effects* reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others. *Allergic phenomena* reported include such conditions as rash, urticaria, ecchymosis, and erythema. *Gastrointestinal effects* such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosage forms: TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL: One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

T-103 / 2/71 / U.S. PATENT NO. 3,001,910

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Painful night leg cramps...

unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

One thing patients can sleep without, particularly patients with chronic disease conditions such as arthritis, diabetes or PVD, is painful night leg cramps. Although seldom the presenting complaint, night leg cramps can tie your patients up in painful knots. Now, just one tablet of QUINAMM at bedtime can usually bring an end to shattered sleep and needless suffering. Your patients will sleep restfully—gratefully—with QUINAMM, specific therapy to prevent painful night leg cramps.

Prescribing Information—Composition: Each white, beveled, compressed tablet contains: Quinine sulfate, 260 mg., Aminophylline, 195 mg. **Indications:** For the prevention and treatment of nocturnal and recumbency leg muscle cramps, including those associated with orthritis, diabetes, varicose veins, thrombaphlebitis, arteriosclerosis and static foot deformities. **Contraindications:** QUINAMM is controindicated in pregnancy because of its quinine content. **Precautions/Adverse Reactions:** Aminophylline may produce intestinol cramps in some instances, and quinine may produce symptoms of cinchonism, such as tinnitus, dizziness, and gastrointestinal disturbance. Discontinue use if ringing in the ears, deofness, skin rash, or visual disturbances accur. **Dosage:** One tablet upon retiring. Where necessary, dosage moy be increased to one tablet following the evening meol and one tablet upon retiring. **Supplied:** Bottles of 100 ond 500 tablets.

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Quinamm™
(quinine sulfate 260 mg., aminophylline 195 mg.)

Specific therapy for night leg cramps

Q103

The concert was just underway,
When to the conductor's dismay
Cramps and diarrhea,
Did so quickly appear,
The maestro no longer could stay.

Because diarrhea with cramping, nausea, and painful straining can strike at the most inopportune time, it takes a comprehensive agent to treat the total diarrheal syndrome and help get the patient back on the job. That's why so many physicians rely on Donnagel, especially during the fall and winter months when "flu" and viral gastroenteritis usually hit their peak.

Donnagel is much more than just a simple kaolin-pectin combination. It also contains the belladonna alkaloids to calm GI hypermotility and help relieve the distressing discomforts which so often accompany diarrhea. Certainly it's less expensive and more convenient than taking two medications. And the dosage is lower too. Available in the handy 4-oz. plastic bottle at pharmacies everywhere on your prescription or recommendation.

When diarrhea and its discomforts separate a man from his job . . .

Donnagel®

Each fluid ounce contains: Kaolin, 6 g.; Pectin, 142.8 mg.; Hyoscyamine sulfate, 0.1037 mg.; Atropine sulfate, 0.0194 mg.; Hyoscine hydrobromide, 0.0065 mg.; Sodium benzoate (preservative), 60 mg.; Alcohol, 3.8%.

A·H·ROBINS

A. H. Robins Company,
1407 Cummings Drive,
Richmond, Va. 23220

Coughs are back.

clear the tract with the

Robitussin® Line

The coughing season is here again. Time to rely on the four Robitussins and Cough Calmers to help clear the lower respiratory tract. All contain glyceryl guaiacolate, the efficient expectorant that works systemically to help increase the output of lower respiratory tract fluid. The enhanced flow of less viscid secretions soothes the tracheobronchial mucosa, promotes ciliary action, and makes thick, inspissated mucus less viscid and easier to raise. Available on your prescription or recommendation.

For coughs of colds and "flu"

Robitussin®

Each 5 cc. contains:

Glyceryl guaiacolate	100.0 mg.
Alcohol, 3.5%	

For unproductive allergic coughs

Robitussin A-C®

Each 5 cc. contains:

Glyceryl guaiacolate	100.0 mg.
Pheniramine maleate	7.5 mg.
Codeine phosphate	10.0 mg.
(warning: may be habit forming)	
Alcohol, 3.5%	

Non-narcotic for 6-8 hr. cough control

Robitussin-DM®

Each 5 cc. contains:

Glyceryl guaiacolate	100.0 mg.
Dextromethorphan hydrobromide	15.0 mg.
Alcohol, 1.4%	

Clears sinuses and nasal stuffiness as it relieves cough

Robitussin-PE®

Each 5 cc. contains:

Glyceryl guaiacolate	100.0 mg.
Phenylephrine hydrochloride	10.0 mg.
Alcohol, 1.4%	

Robitussin-DM in solid form for "coughs on the go"

Cough Calmers™

Each Cough Calmer contains:

Glyceryl guaiacolate	50.0 mg.
Dextromethorphan hydrobromide	7.5 mg.

Select the Robitussin®"Clear-Tract" Formulation That Treats Your Patient's Individual Coughing Needs:

Robitussin® extra benefit chart

All 5 Robitussins have an EXPECTORANT-DEMULCENT action. Keep this handy chart as a guide in selecting the formula that provides the *extra* benefits you want for your patient.

	Cough Suppressant	Antihistamine	Long-Acting (6-8 hours)	Nasal, Sinus Decongestant	Non-Narcotic
ROBITUSSIN®					●
ROBITUSSIN A-C®	●	●			
ROBITUSSIN-DM®	●		●		●
ROBITUSSIN-PE®				●	●
COUGH CALMERS™	AHR		AHR		AHR

A. H. Robins Company, Richmond, Va. 23220 A·H·ROBINS

Efudex®
(fluorouracil)
cream/solution

In the treatment of solar/actinic keratoses–
An alternative to cold, fire and steel

2/23/68
Before treatment with 5% 5-FU cream. Patient R. G., 78 years old, shows extensive skin changes due to weathering and severe solar/actinic keratoses.

3/26/68
Following one month of therapy. Intense erythematous reaction is seen at sites of keratoses. Normal skin has not reacted. Some areas which had reacted initially have undergone healing despite continued topical application of 5% 5-FU.

6/11/68
Ten weeks after discontinuance of therapy. All areas have healed completely. Residual mild erythema remains in some areas. This patient also had seborrheic keratoses which, as expected, have not reacted. There is no evidence of residual lesions or recurrences.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

n alternative
conventional therapy

Efudex (fluorouracil) offers the physician a ical alternative to cryosurgery, electrodesiccation cold-knife surgery in the treatment of solar/actinic atoses. It is effective, comparatively inexpensive and ecially well suited for treatment of these multiple ons. Important, too, is the highly desirable cosmetic lt. Clinical experience demonstrates that treatment Efudex results in an extremely low incidence of ring.*

ighly effective

In clinical trials, depending on the dosage form strength used, complete involution occurred in o 88 per cent of lesions following treatment. The of recurrence was low, ranging from 1.7 to 5.6 per up to a year after completion of therapy. When lesions appeared, repeated courses of Efudex apy proved effective.*

edictable
erapeutic response

Two to four weeks constitutes a typical course fudex therapy. The response is usually characteris- nd predictable. After three or four days of treat- t, erythema begins to appear in the area of keratoses. s is followed by an intense inflammatory response, ing and occasionally moderate tenderness or pain. height of the inflammatory reaction generally occurs weeks after the start of therapy, and then begins ubside as treatment is stopped. Within two weeks of ontinuing medication, the inflammation is usually e. A mild erythema may remain for two or three ths before gradually receding. Since this response predictable, lesions which do not respond uld be biopsied.

wo strengths—two
osage forms

Efudex is available as a 2% or 5% solution or 5% cream. It is applied twice daily by the patient h a nonmetal applicator or suitable glove.

Before prescribing Efudex, however, two im- tant considerations: First, please consult the com- e prescribing information for precautions, warnings and adverse reactions. Second, advise the patient that treated lesions should respond with the characteristic but transient inflammation. A positive sign that Efudex is working for them.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Efudex Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)-aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Efudex Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing-cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

new
Efudex®
(fluorouracil)
cream/solution

ta on file, Hoffmann - La Roche Inc., Nutley, New Jersey.

Not too little, not too much... but just right!

"Just right" amounts of Ilosone Liquid 250 can be dispensed easily from the pint bottle in *any* quantity you specify to meet your patients' precise needs—without regard to package size.

ready-mixed
Ilosone® Liquid 250

Erythromycin Estolate

(equivalent to 250 mg. of base per 5-ml. teaspoonful)

Additional information available to the profession on request.
Eli Lilly and Company
Indianapolis, Indiana 46206

Lilly

100204

LESS THAN FOUR PER CENT of the $62 billion (seven per cent of the U.S. gross national product) going into public and private medical expenditures has gone into research to advance medical knowledge. This is related to the low priority given to medical research by the Nixon administration. This "anti-science" attitude in Washington does not seem to recognize the fact that ignorance causes a lot more trouble than does knowledge. An example of the situation in Washington is President Nixon's pocket veto of a bill which would have provided medical schools and hospitals $225 million in federal aid during the next three years to train more family doctors. Nixon did not sign the bill while Congress was on its Christmas break. This virtually killed the bill and deprived Congress of its right to override a formal veto. Perhaps Congress, in its last struggling days of the session, would not have overridden the bill anyway. The President contends that the government already has more health programs than it can handle, and several of them now existing can promote training of general practitioners. Our country is probably short at least 50,000 doctors now and numerous schools are in financial difficulties. They are turning down some 10,000 applicants a year because of lack of faculty and facilities. It is obvious there is no need to recruit more potential doctors than we have the equipment to train. Here is the logical place for aid and encouragement.

The "Anti-science Era" in Washington

The present administration, it says, has plans for a program dealing with medical costs, overwhelming hospital expenses and the question of more comprehensive and effective health insurance. Probably this is the reason for the veto of the above doctor bill, the backers of which intend to challenge the action in Congress and in court. If President Nixon has something better in mind his plans are bound to have priority during the coming year. It will be interesting to see what follows in response to the many pressures from different sources and directions. The subject has been given an unprecedented amount of publicity in our magazines and newspapers, and there are a lot of eyes ready to note the order and priority of events and, of course, the attitude of the President and Congress in responding to them. This is the stuff of which politics is made!

THE STATE OF OUR ecology must be the most important problem of mankind. In a recent editorial we noted the frightening threat of non-pathogenic bacteria becoming pathogenic because of alteration of their environment by antibiotics. A recent questionnaire eliciting participation in a proposed vasectomy program* further stimulated contemplation of the responsibility of doctors to solution of the problems of our environment. Then came realization of the unique and tremendous involvement of medicine in ecology.

Ecology and the Doctor

Over the years medicine has been involved with the development of almost every aspect of the ecologic threats to survival of this world. Control of pollution for the prevention of disease dates from early times to Louis Pasteur, to typhoid, to mine dust, to cigarette smoke and emphysema and cancer. During this century a primary challenge to medicine has been the increase in the ecologic diseases of urban civilizations—among others, psychiatric states, coronary heart disease, and peptic ulcer. By involvement

*Medical Committee, Zero Population Growth, Denver Chapter, c/o Wm. B. Cutts, M.D.

medicine has become the authority on problems of the aged, a huge ever-growing new segment of our population. Finally, medicine is irrevocably involved in the threat of overpopulation, the sine qua non of the whole problem. The scientific, philosophical, and moral aspects of this threat, from sterilization to preservation, is an involvement so broad and so profound that it staggers the mind and conscience.

Recently, ecology has become the popular subject of the politicians. We are amused to hear a congressman retrospectively make reference to his recognition four or five years ago of an ecologic danger. Let us not smile too broadly! At least these men are now aware and are now taking their position. Have we as doctors really thought about the problem? Have we taken any positive actions, individually or as organizations? Are there not many of us who have not even considered these threats to our environment as *fundamentally problems of medicine?* We are up to our necks in pollution, but most of us are just holding our noses—still observers and critics.

Ecology is the vital problem in our time. We who have the longest involvement, the broadest knowledge, and the deepest commitment are leaving the solutions to the politicians, the industrialists, the youth and the statesmen. Think about it!

Hazard of Pacemaker Function

In the Journal of the American Medical Association during 1970 a letter to the editor described the effects of microwave ovens on an implanted cardiac pacemaker. This concerned the interesting observation of the cessation of pacemaker activity in a patient who found the need to come near a microwave oven. As a result of this publication the FDA encouraged a communication of warning to be disseminated by pacemaker manufacturers. This was accomplished and mailed under the auspices of the Association for the Advancement of Medical Instrumentation to administrators of hospitals of over 100 bed capacity throughout the country. Unfortunately this limited mailing may not have reached the most important individuals in the care of pacemaker patients such as cardiologists, cardiac surgeons, and cardiovascular laboratory nurses.

This matter has been called to the the attention of the State Health Department and they have already been active in discussing the potential hazards and disseminating the information to various members of the allied medical professions throughout the state of Colorado. It is estimated that there are at least 2,000 microwave ovens in use in Colorado at the present time, but we do not know about the other states in our area where this information is also timely.

Mood altering agent use in America*

"Why drugs"

V. Alton Dohner, MD, Seattle, Washington

In an effort to bring more understanding to the misuse of mood altering drug, the author has included other agents used. The motives for adult use of these agents are detailed as are those of young people.

DURING THE PAST SIX YEARS America has witnessed a widespread "educational" effort whose aim has been "to tell our kids about the dangers of drugs and dope." This cultural panic and the resultant undertaking was precipitated by the formation of a new mood altering drug culture. This new culture didn't subscribe to the old, sacred-cow mood altering agents of society — aspirin, tobacco, alcohol, barbiturates, Librium®, Miltown®, or Dexedrine®. It was a culture advocating the use of the psychedelic (mind-manifesting) drugs—LSD, mescaline, psilocybin and marijuana. The use of the agents was especially disturbing as they were said to produce something unknown to the majority of Americans —passivity, a mystical experience, and an expansion of conscious awareness. The expanded consciousness was said to make one more aware of oneself, of the "games" of society, and of the truly important things of life. The result was said to be a greater appreciation and joy of living.

*From the Department of Medicine, University of Colorado Medical Center, Denver. The author is now Chief, Pulmonary Diseases, Department of Medicine, USPHS Hospital, P.O. Box 3145, Seattle, Washington 98114.

The passage of time has revealed that these agents are not the panacea of life any more than are alcohol, tobacco or coffee. They are not psychedelic but psychodysleptic (mind-disturbing, consciousness-distorting). They alter the normal integrating and filtering mechanisms of the brain, thus affecting the emotional and intellectual responses to various internal and external stimuli. The alteration of integrating and filtering functions produces changes in the intensity, clarity, content, form, function and relationships of the objects, concepts or sensations perceived by the individual. The so-called psychedelic insights or consciousness-expanding experiences may result from fixation on minor aspects of one's surroundings (a flower) or from the loss of personal boundaries and a feeling of blending into one's surroundings. The insights may also be derived from past experiences allowed to emerge into consciousness in a scrambled fashion.

A different, usually pleasurable, alteration of reality perception (consciousness-contraction) may occur with the use of alcohol, barbiturates and other sedatives, heroin and other opiates, or tranquilizers.

Time has also proved that any use of illegal or socially disapproved agents does not necessarily constitute abuse. Abuse is the use of any mood-altering agent in a manner which impairs the individual's physical or psychological health or his occupational or

social adjustment. Thus some coffee, alcohol, tobacco, aspirin, laxative and sedative use although legal, is abusive.

Study of mood altering agent use reveals that people develop psychological dependence on an agent or some behavior when it alleviates discomfort or gives pleasure. Psychological dependence is due to the individual user and not to some intrinsic function of the agent. How many Americans are psychologically dependent on eating, drinking coffee, smoking tobacco, taking a pill or drinking some alcohol in times of tension, frustration or fatigue?

One must realize that the modification of drug effects by physiological, social and environmental factors (set and setting) is considerable.[1] Thus one should ask if any effect observed is actually a result of the administration of the drug. Is it a result, totally or partially, of a combination of non-drug factors? Examples of a nondrug factor influence are the placebo effect in clinical medicine, and the "contact high" experienced by a person who smokes cigarettes and drinks water or carbonated beverages at a cocktail party, marijuana party, or LSD party. This knowledge should lead one to be skeptical about any drug as a major determinant of any behavior and to more serious study of the drug user as an individual.

What are the agents which are or have been used for mood alteration in our society? I have attempted to list them in Table I, but the list may be incomplete as new agents appear every day. Keep in mind that none of these agents are intrinsically good or bad and that many of them have, have had, or may have a useful function in our society.

Why do people use these agents for mood alteration? Is there some common psychological factor? Isn't just living exhilarating or intoxicating enough? Doesn't living life to its fullest expand conscious awareness sufficiently? Are they all withdrawing from reality? Let us look at some of the psychological motives for the use of these agents in our society.

Well-Being

An obvious reason for the use of some of these agents is that the person is searching for some nebulous, optimal state of physical and/or mental well-being. The individual often cannot describe what he is seeking other than "to feel better" or "to feel good again." He seems to believe there is a magic chemical with which he can attain this optimal condition. This is an age-old search and history records many agents which have been extolled as the tonic of life. Such a search is implied in the motto "better living through

Table I

Alcohol	Ergot alkaloids	Opiates & opioids
Amphetamines (Speed)	Ether	PAM[3]
Amyl nitrate	Food	Peyote, Mescaline
Anticholinergics	Freon	Phencyclidine (Sernyl)
Antifreeze	Gasoline	Sedatives, OTC[4]
Antihistamines	Glue & cements	Sedatives, non-barbiturate
Aspirin	Inhalers	Solvents & thinners
Banana peels	Insecticide sprays	Spices[5]
Barbiturates	Laxatives	Stimulants, non-amphetamine
Bromides	Lichens	"STP" (DOM)[6]
Caffeine	LSD	Strychnine
Catnip	Marijuana, hashish, "THC"	Talwin®
Cleaning fluid	Methadone	Television
Cocaine	"Mix-N-Match"[2]	Tobacco
Cough syrups[1]	Morning glory seeds	Tonics
Darvon®	Mushrooms, psilocybe or amanita	Tranquilizers
DMT, DET, DPT, DOET, DMA	Nail polish remover	Tranquilizers, OTC
Ephedrine	Nitrous oxide	Vitamins

[1] Contain alcohol, antihistamines, ephedrine like drugs and/or codeine or codeine analogs.
[2] Combinations of miscellaneous pills acording to size, shape or color, taken with wine or water. When handfull of pills is grabbed out of bowl this is called "fruit salad."
[3] Vegetable oil spray used for coating cookware.
[4] OTC = over the counter.
[5] Nutmeg, mace, cinnamon, oregano.
[6] Dimethoxymethamphetamine.

chemistry" which many of our young people have taken to heart. So have some of their elders who daily consume needless tonics, laxatives and vitamins in order to "be regular" or to "have more energy." However, little is said publicly about the adverse effects of long term laxative or excessive vitamin usage. We have drugs available in the pharmacy to make us sleep, to keep us from being too sleepy, to give us energy, to slow us down, to make us tranquil, or to treat all manner of aches and pains—social, psychological and physical, real and imagined.

The myth of a chemical cure for all discomforts, real or imagined, is imparted to our children at the knees of their mothers when they are given aspirin or "some medicine" for various minor aches and pains. It is reinforced by advertisements on radio and television extolling various preparations for handling the tensions and stresses of everyday living. Many children under six years of age can name various over-the-counter remedies on sight of the container. They may also be able to describe the purpose of each one.

Blum reported that many of the youth in the early psychedelic drug scene were individuals who, as children, were more frequently taken to the doctor (apparently for the minor aches and pains of normal development). These children had also received more drugs from parents and physicians, for the treatment of their problems. They had learned to readily take drugs. Blum characterized them as "drug optimists" in that they expect a great deal from the drugs they use. Are not many adults the same when they go to their physician or pharmacist and request a certain type of drug or specific drug?[2,3]

Instant Happiness

With an emphasis in our society on the rapid fulfillment of desires or needs, it is no wonder people want instant happiness. As Konrad Lorenz recently stated, we have instant coffee, instant tea, and Instant Breakfast®, why not instant achievement? Mood altering agents are to give success, happiness, tranquility, serenity, attention, love, understanding, energy, or stimulation at literally, the tilt of a bottle, the swallowing of a pill, or the twist of a dial. Ignored is the fact that an external agent cannot produce internal attributes. Ignored is the fact that with achievement and success goes struggle and with joy goes sorrow. For every action there must be some reaction. However, the frequency and amplitude of struggle-success or sorrow-happiness cycles may be dampened by chemical modifiers until life becomes a placid, waveless, pallid existence.

Curiosity

A common reason many youngsters and adults try various mood altering agents is just "to see what it is like." Curiosity is part of the normal healthy personality and is necessary in developing a meaningful identity and a personal set of values. In this quest, or even afterward, there may be the inclination to have an experience solely for the experience; to be able to say "I did thus and so." Many young adults, 25-40 years of age, have tried marijuana and LSD only to see if they were what mass media, prophets of doom, psychedelic prophets or drug users said they were.

Relaxation

A major function for the various mood altering agents is to unwind after some mental or physical activity. That is why many middle-class fathers have a drink upon arriving home from work and before attempting to even talk with the family. It is the motive behind a beer after mowing the lawn, a cigarette after a ping-pong match, a cup of hot wine after skiing, a "joint" after supper, a cup of coffee or a tranquilizer after getting the kids off to school.

Frequently certain users believe that they cannot relax without their mood agent. They have either forgotten, or never learned, how to sit back, let the world pass for a few moments and recharge body and soul. Such inactivity is not totally acceptable in our society which cherishes constant activity and "productive recreation." Therefore rituals involving a mood altering agent may be developed (the coffee break, the cigarette break) and the person is "allowed" to relax. The ritual is also necessary for certain rigid personality types who need structured, scheduled or "productive" inactivity before they can relax. This mood altering agent use may then become a way of life.

It is becoming increasingly evident that many of us are psychologically unprepared to handle the increasing amounts of free time.[4] We no longer utilize what has been called "the innate capacity of the whole conscious personality to freely receive and perceive all the stimuli and impressions from the inner and outer worlds." In relaxation an individual must allow his body, mind and emotions to have free play. To quote A. R. Martin: ". . . Interested in the whatness rather than the whyness of things, he meditates, contemplates, reflects, marvels, wonders and free associates." This involves an active rather than a passive state of mind and many people have neglected their capacities for engaging in it. To some people this frame of mind is frightening and they resist it. Rather than rediscover, restore, or reactivate these capacities, various external agents are used to induce a "relaxed" mood. What has happened to the idea: "I'd rather do it myself?"

Recreation

Interrelated with relaxation is the recreational use of these agents. For some it is an attempt at re-creation, wherein they can re-energize body and soul and be better set to handle any new stress. For others it is only a way to facilitate social interaction, a reason to get people together, or when together, to get them to relax and be convivial. Some mood altering agents may be used to heighten the enjoyment of an already pleasurable situation. Various agents can serve as social lubricants, but the most frequently used ones in our society are alcohol, coffee, tobacco and recently marijuana.

One basic aspect of the recreational use of drugs is that it is *fun*. Regardless of the agent used, most people do not wish to admit that their major motive for use is to receive pleasurable stimuli. Many apparently cannot say they use the agent simply because they enjoy it. They construct ideologies to explain what to them is a pleasurable practice: e.g., "it helps me relax, it expands my mind, it makes me more alert, it helps me concentrate, it makes me sociable, it makes me more open."

The recreational use of mood-altering agents may also involve a *love of danger*. There is the belief that "it can't happen to me." The user attempts to find out how close he can come to the edge and not go over. This applies to chances of physical dependence, physical damage, "freak-outs", or legal consequences. The dangers are something new to be flirted with or just experienced. They are a new "kick" for many of the over-indulged, over-gratified, under-stimulated members of our society. Thus mood-alterers become an effortless way to be excited, to avoid boredom and to feel invulnerable simultaneously. This is also seen in other risk-taking behavior or antisocial activities.

Commonly involved in the recreational use of mood-alterers is *peer-group pressures*. This is a significant factor in all age groups and at all levels of society. One is thought of as a "queer duck" just as much for abstaining from alcoholic drinks at certain social functions as for refusing marijuana, "pills" or amphetamines at others. The real and imagined consequences are as threatening or frightening to certain adults as they are to some adolescents. The psychological reward of belonging to a certain group may be sufficient to offset the fears of or the distaste for the activity involved. The activity or agent may also be used to attain status within the group.

As free time or leisure time increases, *boredom* seems to increase and one sees an almost frantic effort to avoid this. For some it may be involvement in reckless or somewhat dangerous sports such as dune buggies, motorcycles, certain types of mountain climbing, speeding cars, or skimobiles. For others it may be using one of several mood-altering agents. These agents are supposed to prevent the boredom, sloth, melancholy and despair which come from personal inadequacy and an inability to find the many intricacies of life stimulating. Rather than develop personal resources which make free time more enjoyable and life more fulfilling, they seem to expect some agent(s) to do it for them.

Psychological Support (Escape)

Mood altering agents may serve as a psychological support in any number of stressful situations. They are a way to avoid pain and discomfort, real or imagined, due to physical, social or physiological conditions. The user (abuser) may be attempting to alleviate

frustration, depression, tension, or anxiety related to his home, family or job.

This personal distress may only be temporary. Thus the agent is a crutch used only until the individual's recuperative powers are sufficient to handle his problem. Examples of such distress are the anxiety or depression following a failure in business or school, loss of a significant interpersonal relationship, or during some drastic change in life styles. However, chronic use may develop when the individual decides he cannot or does not want to handle his emotional problems without some external agent. The use of the mood altering agent is a way of avoiding facing one's problems and making decisions.

An individual may use the agent to *avoid fatigue* or a "run down" feeling, as is seen with the use of vitamins, tonics, caffeine, nicotine or amphetamines. These users are frequently seeking constant stimulation to make life more endurable. They cannot stand to sit very long as though they will miss something spectacular. Such personality types may also utilize high powered automobiles or motorcycles to obtain similar thrills and the stimulation of "speeding." Part of this desire for a rapid pace of life seems due to the pressures to excel in business or school. We are constantly pushed to keep moving in vertical directions. While some persons do not care for the constant drive of economic competition, they do want constant psychological and sensual satisfaction.

The escape usage may also be an attempt to *reduce the intimacy* required in human relationships. We cannot do so openly in our society, as we are supposed to like each other and be able to get along with, be affectionate to and want to be with others. With the use of the various mood-altering agents one can live in a world of illusions. He can convince himself he is involved with others, without any effort to be so. Under the influence of his agent he doesn't worry about the depth or intensity of these relationships and isn't really concerned if there are none. Television, tranquilizers, sedatives, alcohol, marijuana, LSD and amphetamines have been used in such behavior patterns.

Currently there are widespread pressures on youth to succeed. The emphasis seems to be on winning, not how one plays. These pressures begin as early as kindergarten and continue unabated, if not intensified, throughout high school and college. The pressures are frequently toward entering professional careers which are unacceptable or unobtainable for the individual. Mood alterers may be a way to *escape the pressures* and avoid silent ego messages of personal intellectual inadequacy. They aid the user in avoiding feelings of inadequacy when he can't conform to others' unreasonable expectations of him and is afraid to state his own plans or desires. The chemical curtain erases the pain of confrontation with one's self image and gives a warm glow of well-being. Alcohol, tranquilizers, sedatives and marijuana may serve such purpose.

The escape form of usage may reflect an attempt at *partial resolution of maturational difficulties.* These difficulties involve the individual's efforts to avoid the emotional crises of maturation, or those of everyday living. The user has not developed adequate technics for handling interpersonal relationships, responsibility, personal aspects of sexuality, or impulse control. Some investigators state the alcoholic uses alcohol in an effort to reassure himself he can be physically aggressive or sexually active and to avoid the fears of being so. Many heavy LSD and marijuana users are trying to avoid any aggressive action—physical or sexual. Drugs may not only remove the anxiety, they may also remove the thoughts or desires which created the anxiety. Thus they put off the time for decision making.

Escapist behavior may be a *reflection of the apathy,* overconformity and acceptance of the status quo which are so prevalent in our society.[5] It is engendered by the current social, religious, economic and political trends wherein individualism and concern for individuals as worthwhile meaningful persons is disregarded. The user sees more concern for the welfare of the corporate identity than that of any single worker; for select groups of the economic oligarchy than for the underdog without much chance to change his lot; for the mirage of a well functioning city, state or nation than for its individual inhabitants; or for increasing the gross national product than for the abatement of pollution

or preservation of a liveable environment. Mood altering agent use may reflect the despairing attitude: "What the hell, I can't change it so why try?" This use may also be an attempt to get recognition as a real, live, human being and is a cry: "Look at me, somebody, I'm a real person."

Rebellion

A further categorization of motives for usage must include rebellion. This may be the normal adolescent rejection of parental authority as they attempt to verify personal identity and to establish an independent self-image. Mood-altering drug use may be one attempt to delineate self and non-self and to declare personal independence.

The *rejection of parental values* and authority may have been engendered by emotional deprivation in a home where both parents are pursuing their own careers without emotional attachment to each other or to their offspring. It may be a rebellion against unspoken rejection and an attempt to gain recognition for one's self as a meaningful person in some authentic community.

The use of these agents is also a means of expressing *rejection of an unacceptable environment.* It then signifies disapproval of or disillusionment with certain societal standards. Rather than fight these standards verbally and actively, the user adopts passive resistance.

Another portion of the rebellion type usage is the fact that it is *taboo.*[7] This is in part a rejection of societal values, part a love of danger and part trying to see if one can tweak society's nose and get away with it. It appears that taboos are violated more when they seem hypocritical, unenforceable (or unequally enforced), or confusing. The hypocrisy blatantly evident today is that most alcoholic beverages are also illegal for those under 21 (18 in some states). Yet we give our youth messages such as: "If you drink, learn to hold it like a man," and "If you drink, just don't get caught." This attitude can then be easily transferred to the use of marijuana, "speed" or LSD.

Another hypocrisy is that persons singled out for enforcement of marijuana laws are usually of some minority group — ghetto dwellers more than middle-class; "longhairs" or "hippies" more than well-trimmed, neatly-dressed youth. A third hypocrisy is the lack of enforcement of laws governing the use of alcohol and tobacco by minors.

Insight, Identification

Part of the normal development of any normal personality is to ask, "Who am I? What is my goal? What is my role in society, my relationship to my fellow man? What does life mean? What is reality?" As Nixon points out in The Art of Growing:[8] the healthy, older adolescent should be in a state of development characterized by questioning and reviewing all of one's previous development. The adolescent reviews his past history for unfinished business; for the gaps left in every person's life due to imperfect resolution of a particular previous state of development. He re-examines all aspects of his identity and the attitudes, values and behaviors involved in that identity.[1]

Mood altering agents are thought by some to be an easy way to approach this re-examination. With psychodysleptic drugs the past can be brought into review rapidly. Added to skilled psychotherapy such rapid review may be helpful. For many, however, this viewing or reliving of past experiences arouses more anxiety than when the review occurs gradually in normal development; normal review arouses sufficient anxiety in itself.

To some, psychoactive drugs are used in the quest for personal *identity and engagement* in an authentic community. Instead of retreating from society he takes drugs out of frustrated yearnings to be accepted by members of that society. Thus drug use may represent the person's attempt to meet his deep needs for contact and meaningful communication within regular society. He is not trying to drop out but into the dominant culture.

Some may use mood altering agents in an attempt to *change their personality.* The agent is expected to perform instant psychotherapy. The user may seek unpredictable results through marked disruption of normal mental functioning in hopes of attaining some "change of heart," "change of mind," or just "to get out of the rut." The psychedelic drugs

are said to provide "a process of going outside, of going beyond learned modes of experience" in the effort to learn more about one's self or his universe. Many people use other mood altering agents in an effort to change some life-style which they think, or have been told, is undesirable.

For others this insight-seeking use is part of their search for one, magnificent, *organizing experience* which finally gives significance and meaning to their life. It is obvious that the drug is expected to resolve tasks left unaccomplished in maturation, make up for something lacking in the user's identity, or make rapid and easy the eternal quest for a satisfying personal identity.

Aesthetic

Another function given for mind-altering drug use is that it will increase creativity. At times it appears that the user expects the drug to produce creativity *de novo*. Examples are given of persons who used various drugs (alcohol, hashish, opium) and were creative—Edgar Allen Poe, Hugh Fitzlaw, Beaudelaire, Quincy, and Coleridge. The reality is not accepted that these individuals may have gotten inspiration for some of their works while intoxicated, but the ability to create was already there. In addition, the work was usually performed while in a non-drugged state.

A second reason for the aesthetic usage is that it supposedly makes one more able to *appreciate or participate* in art, music, dancing, nature or "beauty." There is a hope of achieving special effects in these.[7] Statements are made that one gets more from a picture, musical work or scenic view, or that one sees and hears things he wouldn't normally appreciate. Some of this is due to the removal of filtering mechanisms allowing massive sensual input; thus, certain sights and sounds become pronounced or take on an altered relationship—bright colors become brighter, sounds seem to separate and then fuse, colors are touchable, music is visible, etc. Unappreciated is the fact that with concentration and voluntary effort some of these filtering mechanisms can be altered to obtain similar results.

Mystical-Religious

The use of various herbal preparations before or in religious ceremonies is well documented throughout history. The chemical actions anticipated by some groups are related to a desire to have ecstatic (out-of-body), transcendental or other-worldly experiences, or an urge to transcend self-conscious selfhood with a highly individualized passive event. In other groups the agents are considered to be a sacrament, a pathway to salvation or a way to bring the individual closer to the Supreme Being.

Braden associates the religious use of LSD, mescaline, etc. with other developments in contemporary religion—such as the death of God theology.[9] The desire to obtain an intense religious experience is, in part, a reaction to our over-intellectual, over-organized, over-mechanized, computerized, depersonalized and decidedly materialistic world. It is also an expression of the intense need for a deep and meaningful personal experience which is highly individualized with emphasis on the intuitive, emotional and nonrational, plus a sense of identification with some larger force or entity.[6] To some people such an experience does not appear possible within the confines of the organized, ritualized, edifice building religion in America.

Some psychiatrists have noted a decline in hospital admissions for religious crises in adolescents. It is interesting that this decline coincided with the advent of the "psychedelic movement" and the current interest in chemical alteration of mood. Drug experimentation and its crises appear to have supplanted religion as an all-involving experience.

Aphrodisiac

Various societies attach different degrees of importance to love as a desirable human experience.[7] As a result a wide variety of agents have been used in attempts to direct and increase the desired processes of love. They may be used in attempts to increase the ability to win love and affection or to control love relations. We see wide evidence of this in our society with the heavy reliance on wrinkle removers, beauty drugs and come-hither fragrances.

Income Protection for Doctors

As a member of the Colorado Medical Society you can purchase up to $1,000.00 a month in disability income protection at special money-saving rates.

These benefits are TAX-FREE — not subject to any Federal Income Tax. They're yours to spend as you see fit — for your regular living expenses or for whatever other purpose you choose.

So don't take chances! Offer your family the extra income protection your Colorado Medical Society Plan can provide. Get all the facts on this great coverage by filling out and mailing the coupon below today.

Mutual of Omaha

The Company that pays

Life Insurance Affiliate: United of Omaha
Mutual of Omaha Insurance Company
Home office: Omaha, Nebraska

Colorado Division Office
Mutual of Omaha
2nd Floor, Railway Exchange Bldg.
Denver, Colorado 80202

Please rush me full details on the Colorado Medical Society's Disability Income Protection Plan.

Address .....

Name .....

City ..... State ..... Zip .....

2-5-8-11-71

The search for animal, mineral or vegetable agents which will increase one's desire for sexual activity, one's sexual performance and the sensual pleasures of sexual intercourse is ageless. With the recent easing of Victorian attitudes toward sex in our society and the teaching that sex activity is normal in even octagenarians, there has been more emphasis on participation. For those unwilling to accept the time necessary for proper psychological preparation of the chosen partner there is the emphasis on a drug to "get her in the mood." The most commonly used agent for this in our society is alcohol.

It is interesting to review the history of many of the mood-altering agents and note that many have, at one time, been reputed to stimulate sexual appetite or performance. An example of this is tobacco. The Portugese sailors apparently decided the lusty sexual appetites of the native maidens was due to their use of tobacco. They subsequently introduced it to the ladies of Portugal.[10] Even today, certain cigarettes are intimated as making one more attractive or likely to be involved in a romantic setting.

We must realize that when drugs are used in a social setting where sexual activity is anticipated, they may be claimed to increase sexual desire or performance. They may do this by lessening defenses and social inhibitions which would otherwise preclude sexual activity. However, the drugs are usually only a vehicle of common interest and activity which sets the stage for fulfillment of prior desires and expectations.

The heightened sexual responses attributed to various drugs may be due to: the clandestine atmosphere which seems to heighten the experience; the alteration of time sense so that a few minutes may seem like hours; an interference with normal sensation so that orgasmic activity is delayed; or an alteration of sensory perception with a heightened awareness of certain body sensations.[6,11]

Comment

Just as the motives for the initiation and continuation of mood altering agent use vary so do the social, religious, educational, occupational and psychological backgrounds of the user. Critical analysis of any chronic misuse of these substances reveals that most of the users have delayed or faulty personality development with psychological inadequacies. A major flaw in development is the inability to tolerate frustration, mild depression, anxiety or tension as parts of everyday life. There is a tendency to seek a quick solution or easement of the problem through the use of sedatives, tranquilizers, stimulants, alcohol or other "drugs." There is also much emphasis on a quick relief which requires little effort from the individual, group, subculture, or society-at-large and promises to produce rapid changes of life-styles.

We must stress that a certain amount of anxiety, tension, fatigue, depression and frustration are normal and necessary for the growth and maintenance of a healthy personality. We need to teach healthy non-drug ways of handling the majority of emotional tensions. In fact, we need to stress that the emotions of anger, joy, sadness and dislike do not always have to be suppressed and held within oneself.

Too much attention has been given the adolescent or young adult "abuser" without placing him in the context relative to his subculture or society. Too little attention has been given the over-use, mis-use and abuse of mood altering agents by adults, especially the parents of those youth involved in the exotic drug scene. It is my experience that parental example has played a strong role in adolescent drug use and abuse.

When, as a society, we can encourage people to live life to its utmost, to enjoy it fully, and to feel concern for the total health of their fellow man, we will see a decline in the need for mood alteration through artificial means. All the effects sought via drugs can be attained through active participation in life, involvement with and concern for others, and through concentration and mental effort.

We must accept the fact that no mood-altering agent is intrinsically good or bad. Many of them are potentially useful agents within our current social structure. But this use can be directed only within the framework of understanding the motives for usage. •

ACKNOWLEDGMENT

The author wishes to express his sincere appreciation to H. G. Whittington, M.D., Sam Wagonfeld, M.D., Kent Jordan, M.D. and Margene Tower, RN, MS for their helpful advice and criticism of the manuscript and to Miss Mary Letourneau for her patient, skillful manuscript preparation.

REFERENCES

1 Nowlis, H. H.: Drugs on the College Campus, New York, Anchor, 1969.
2 Blum, R. H.: Drugs and personal values. Background Papers, NASPA Drug Education Project, 1966-1967.
3 Blum, R. H.: Nature and extent of the problem. Background Papers, NASPA Drug Education Project, 1966-1967.
4 Martin, A. R.: Idle hands and giddy minds: Our psychological and emotional unpreparedness for free time. Amer. J. Psychoanal 29:147-156, 1969.
5 Keniston, K.: Drug use and student values. Background Papers, NASPA Drug Education Project, 1966-1967.
6 Chanin, A.: Alternatives to drug abuse. Clin. Ped. 8:6-10, 1969.
7 Barber, B.: Drugs and Society, New York, Russell Sage Foundation, 1967.
8 Nixon, R. E.: The Art of Growing, New York, Random, 1962.
9 Braden, W.: The Private Sea: LSD and the Search for God. New York, Bantam, 1967.
10 Taylor, N.: Narcotics, Nature's Dangerous Gifts, New York, Dell, 1966.
11 Fisher, D.: Marijuana and sex. Illinois State Medical Society, Symposium on Marijuana and Psychedelic Drugs, March 1968.
12 Nixon, R. E.: Psychological normality in adolescence. Adolescence 1:211-223, 1966.

RECOMMENDATIONS FOR FURTHER READING

1. Blum, R. H. and associates: Drugs I. Society and Drugs: Social and Cultural Observations. II. Students and Drugs: College and High School Observations. San Francisco, Jossey-Bass, 1969.
2. Fort, J.: The Pleasure Seekers, New York, Bobbs-Merrill, 1969.
3. Louria, D. B.: The Drug Scene, New York, McGraw-Hill, 1968.
4. Cohen, S.: The Drug Dilemma, New York, McGraw-Hill, 1969.
5. Harms, E.: Drug Addiction in Youth, New York, Pergamon, 1965.
6. Burn, J. H.: Drugs, Medicines and Man, New York, Scribner's, 1962.

Compromised renal function secondary to spontaneous retroperitoneal hemorrhage*

George Pappas, MD, Jorge Guillen, MD and Hywel Davies, MD, Denver

The potential hazards of permanent damage to one kidney prompted immediate surgical evacuation of the massive hemorrhage.

RETROPERITONEAL HEMATOMAS secondary to anticoagulant therapy have been described.[1-5] Often the hematoma is small and can be treated by non-operative means. However, surgery is required when bleeding is severe.

The present report describes a patient with a large retroperitoneal hematoma that compromised the function of the right kidney. To our knowledge, this situation has been reported in only one other patient.[5]

CASE REPORT

A 39-year-old white male was admitted to hospital for replacement of a clotted Starr-Edwards mitral valve prosthesis with an aortic homograft. In 1957, he had a closed mitral commissurotomy and in 1960, following an arterial embolus to the right leg, he developed a right retroperitoneal hemorrhage secondary to heparin therapy which was successfully treated with surgery. In 1966, the mitral valve was replaced with a Starr-Edwards prosthesis. Because of multiple episodes of peripheral embolization, the mitral prosthesis was replaced with a stented aortic valve homograft on November 25, 1969. Subcutaneous heparin therapy was initiated three days after surgery with clotting times ranging between 16-30 minutes. He had a mild upper gastrointestinal bleed during heparin therapy. One week following heparin treatment, he complained of right flank and abdominal pain. The abdomen was rigid, the blood pressure dropped from 115/70 to 95/50, the hematocrit fell from 36 per cent to 26 per cent and a bluish discoloration was seen over the right flank. Urine output fell drastically for approximately four hours, during which time he was given 2000 cc of blood and 300 mgm of furosemide in divided doses. Following that his urine output rose to 75-100 cc per hour. Abdominal x-ray demonstrated obliteration of the right psoas shadow and an intravenous pyelogram (Fig. 1A) failed to demonstrate function in the right kidney. A mercury renal scan (Fig. 1B) was then performed which showed poor uptake in the right kidney.

At operation a large retroperitoneal hematoma extending from the diaphragm to the pelvic region was found. Because of the large hematoma the right kidney was not palpable. Approximately 3000 cc of clotted and liquified blood were removed from the retroperitoneal region. Several small areas of bleeding in the retroperitoneal space were controlled. The vascular supply of the right kidney was intact and the cortex appeared normal. Following surgery he had a brisk diuresis of 2000 cc over a five-hour period.

Anticoagulants discontinued. Postoperatively the BUN rose to 141 mgm% (which may in part have been related to a transient upper GI bleed). Approximately 1½ weeks following the abdominal operation, the BUN, IVP (Fig. 2A) and the renal scan (Fig. 2B) returned to normal.

*From the Departments of Surgery and Medicine, University of Colorado Medical Center and the Veterans Administration Hospital, Denver.

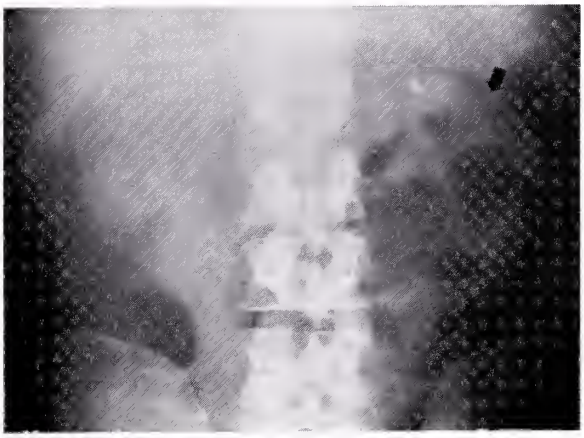


Fig. 1-A. IVP fails to demonstrate the right kidney. The left kidney is visualized (arrow), although the uptake of dye is reduced.

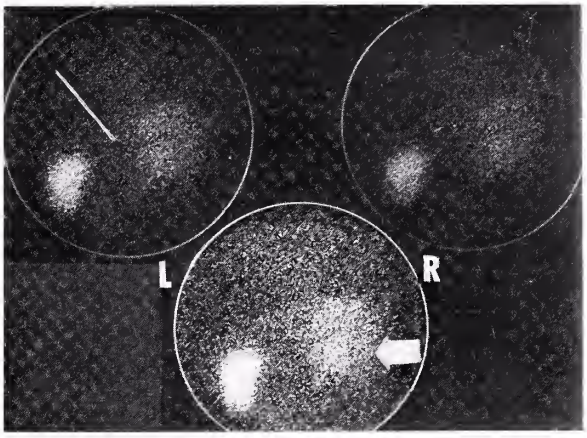


Fig. 1-B. Isotopic mercury renal scan demonstrates impaired uptake in the right kidney. The radioactivity (arrow) represents the liver. However, the left kidney shows a normal uptake.

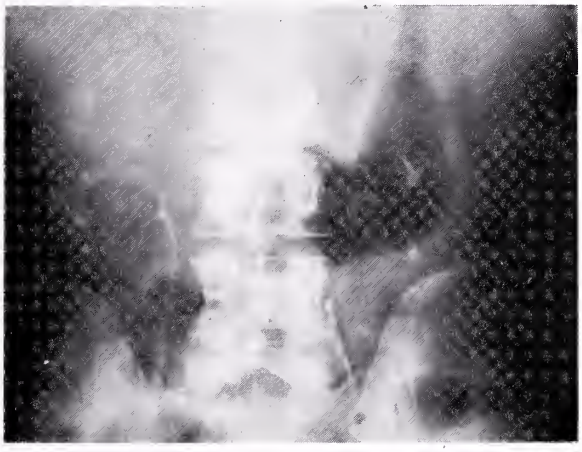


Fig. 2-A. IVP now demonstrates normal function of both kidneys.

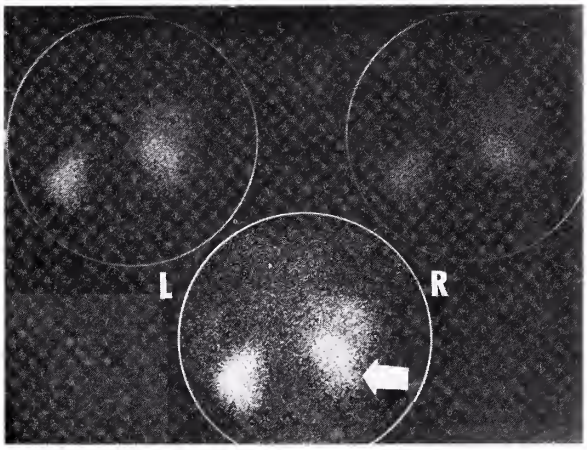


Fig. 2-B. Isotopic renal scan demonstrates a return of function of the right kidney (arrow). The uptake of the liver is also seen.

Discussion

Massive spontaneous retroperitoneal hematoma requiring surgery is an unusual complication of anticoagulant therapy. Hodin and Dass[5] reported seven patients with retroperitoneal hemorrhage secondary to anticoagulants. Three of the seven reported patients died; two deaths being directly related to hemorrhage. One patient was operated on with success and the remaining three were treated by non-operative means. Two of the patients had IVP's; one showed displacement of the kidney (non-operated) and the other patient had non-visualization of the kidney (operated). The patient that required surgery had an uneventful postoperative course much the same as our patient. In a case reported by Kaden[1] the patient showed anemia and retrograde dye studies demonstrated obstruction at the ureterovesical junction by the hematoma. The obstruction was intermittent and the patient recovered without surgery.

Our patient presented with an unusual massive right retroperitoneal hematoma that jeopardized the function of one kidney, as demonstrated by intravenous pyelography and isotopic renal scan. The mechanism for depressed function of the involved kidney may be due to obstruction of the ureter or collecting system and/or mechanical compromise of renal blood flow from compression, torsion or kinking of the vessels. Because of the acute nature of his illness, the poor renal

function was probably related to mechanical alteration of renal blood flow. Whether permanent damage to that kidney or death would have occurred without surgery is speculative. However, return of function did occur after evacuation of the massive hematoma.

Summary

Massive spontaneous retroperitoneal hemorrhage secondary to anticoagulant therapy led to impairment of function of one kidney. This is an unusual complication of anticoagulant therapy.

The findings of a greatly depressed function of one kidney on the involved side of the hematoma by intravenous pyelography and isotopic renal scan prompted immediate surgical evacuation of the clot and control of bleeding. Following surgery, the right kidney function returned to normal. •

Interposition of the colon between the liver and diaphragm

Theodore R. Lenz, MD, Pueblo, Colorado

Right lower quadrant pain is a common symptom which the doctor must try to explain, since serious intra-abdominal disease may be responsible. This article describes a condition in which the patient not only presented with right lower quadrant pain but also with gas over the liver.

CHEST X-RAYS ARE commonly taken as part of a medical examination to determine the cause of abdominal pain and vomiting. Ordinarily the chest x-ray film has an intense homogenous density below the right dome of the diaphragm due to the liver. Radiolucency here is usually associated with a very serious intra-abdominal disease, such as pneumoperitoneum due to a perforated peptic ulcer or a subdiaphragmatic abscess due to gas-producing organisms. When interposition of the colon occurs, there is also radiolucency beneath the right dome of the diaphragm.

CASE REPORT

Vomiting and right lower quadrant pain brought this 75-year-old man to the hospital. He also complained of chest pain and orthopnea. He was being treated for emphysema. Three years earlier he had a myocardial infarct. In past years he had also had surgical repair of a ventral hernia and two inguinal hernias, as well as a hemorrhoidectomy. Of concern to this man was chronic constipation, for which he took many laxatives.

His blood pressure was 140/80. His pulse rate was increased. He was afebrile. He was dyspneic and slightly cyanotic. His jugular venous pressure was elevated with expiration. There were a few high-pitched wheezes bilaterally. The first heart sound was accentuated. No other cardiac abnormalities were noted. The abdomen was distended but bowel sounds were present and of normal quality. There was no abnormal guarding; no rigidity and no tumors or hernias were found. However, there was a tympanic percussion note over the liver, where a dull sound is expected. No edema was found in the legs. His arteries appeared sclerotic and tortuous.

A chest x-ray was taken as part of his initial work-up. Chilaiditi's syndrome was diagnosed. There was no perforated viscera and no subdiaphragmatic abscess. The diagnosis was made relatively easily because the haustra of the colon are clearly visible on both the P.A. and lateral views.

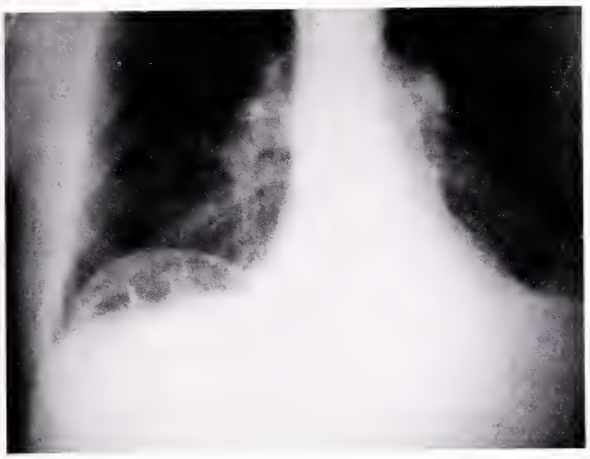


Fig. 1. P-A chest x-ray showing interposition of the colon.

Discussion

In 1910 Chilaiditi described three adult patients with intermittent interposition of the colon between the liver and diaphragm. Since he presented the first detailed description of this phenomenon, it bears his name.

The ascending colon is typically retroperitoneal, ascending from the lower right to upper right quadrant to end in the right colic (hepatic) flexure under cover of the liver and close to the gallbladder. The transverse colon has a mesentery which attaches it to the posterior abdominal wall.

How can the colon get over the top of the liver? This anomaly has been found in infants, as well as adults, so a review of the embryologic development of the colon is indicated.

Ordinarily during the final stages of intestinal rotation in the developing embryo, there is a lengthening of the first portion of the colon, with formation of a right (hepatic) flexure. With the cecum now in the lower right quadrant, that portion of the mesentery attaching to the ascending colon and lying against the posterior body wall fuses with the body wall through disappearance of the adjacent mesothelial surfaces. Thus this portion of the colon no longer has a mesentery and the serous surface of what was the left side of the ascending colon becomes posterior or parietal peritoneum of the right side of the abdomen.

The most common defect occurring in the third stage of rotation is improper fusion of the ascending mesocolon. Unusual length of the colon involves either the transverse or sigmoid colon.

Interposition of the colon between the liver and the diaphragm is possible when the ascending colon has a mesentery which allows unusual mobility. An excessively long transverse colon would more easily slip over the liver, while one of normal length could not. Aerophagia contributes by distending the colon, promoting lateral displacement.[4]

Interposition of the colon has been put into two groups, intermittent and permanent. This patient's interposition was of the intermittent type, since some chest films show the colon under the diaphragm and over the liver, while others do not. In order to identify this disorder chest films must be taken with the patient upright because the colon slides anteriorly and down when the patient is supine in the intermittent variety.[2] Lying down can also relieve obstruction.[1]

Fig. 2. Lateral chest x-ray showing interposition of the colon.

Fig. 3. Barium Enema showing very redundant colon.

Conclusion

When gas is present under the right hemidiaphragm consideration must be given the possibility of interposition of the colon to avoid unnecessary surgery. Should the radiolucency here be found to be due to the colon, the patient and his physician must be reassured as to its innocent nature. Surgical procedures to shorten the mesentery or colon or tack it down are unnecessary. In addition to reassurance, the patient could be advised that the recumbent position may help relieve a temporary obstruction. The contribution of aerophagia to his symptoms should also be explained.

Summary

A case report of a man with intermittent interposition of the colon between the liver and diaphragm was presented. The differential diagnostic problems were discussed and treatment was outlined. •

REFERENCES

[1] Hunter, H. L., Rapp, R.: Radiology 61:67, 1953.
[2] Kolju, K. J.: "Roentgen Diagnosis of Hepatodiaphragmatic Interposition of the Large Intestines," Am. J. Roentgenology 39:928-936, June 1938.
[3] Jackson, A. D. M., Hodson, C. J.: "Interposition of the Colon Between Liver and Diaphragm (Chilaiditi's Syndrome) in Children," Arch. Dis. in Childhood 32:151-158, 1957.
[4] Rogers, J. C. T.: Illinois Med. J. 68:264, 1935.

Abortion and euthanasia: A reply

Richard D. Lamm and Steven Davison, Denver*

Interesting and authoritative comment upon a legal question of national scope.

AN ARTICLE IN THE *Rocky Mountain Medical Journal*, November 1969, Abortion and Euthanasia, by Stanley Crosbie, MD, found an irreconcilable conflict between abortion as permitted under the 1967 Colorado Abortion Act and the rejection of the principle of euthanasia. A reply to that article is necessary since we believe that no such conflict exists, since neither in law, medicine, or popular opinion is the abortion of an unquickened or non-viable fetus recognized as the taking of the "life" of a "human being." We agree that the principle of euthanasia has been properly rejected as an impermissible taking of life; however, contrary to the assertions of Dr. Crosbie, the law does not recognize that the unquickened or non-viable fetus is a human being with the full rights of a living person. In addition, there is no such consensus recognition in medical, secular, or religious opinion.

When Colorado passed its reform abortion statute in 1967, it was the most liberal abortion statute in the nation. Since that time, California, Arkansas, Delaware, Georgia, Kansas, Maryland, New Mexico, North Carolina, South Carolina, Oregon, and Virginia

*Richard Lamm is a Colorado legislator and was the chief sponsor of Colorado's 1967 Therapeutic Abortion Bill. Mr. Steve Davison is a third-year law student at Yale University, who has participated in the present litigation in the Colorado Federal District Court attacking Colorado's new abortion bill as being unconstitutional.

have passed similar statutes. In the last three years, public, judicial and legislative opinion have increasingly supported a liberal attitude to a woman's right to abortion. In the first six months of 1970, Hawaii, New York, and Alaska passed statutes allowing a woman to receive an abortion of a non-viable fetus for any reason. In addition, the 1967 California Therapeutic Abortion Act., a reform statute similar to the 1967 Colorado statute, has been declared unconstitutional.†

The purpose of organized opposition to these liberalized abortion statutes, that human life begins at the moment of conception, is not generally accepted by members of the public.[1,2,3,4,5] The study of Dr. Knutson[1] conclusively indicates that there is no majority or consensus view among public health professionals as to when human life begins.

Few major religions accept the viewpoint that human life begins at the moment of conception. The Jewish religion adheres to the idea that only at the moment of live birth has the *nefesh*, the living soul, been established in the emerging child.[6] The view that human life does not begin at conception is held by many other major religious groups in the United States.‡ The Roman Catholic Church is the only major religious group in the United States that recognizes human life as beginning at conception. (Canon 747 of the 1917 Code of Canon Law).[6]

No state or nation requires that a dead fetus be treated as a dead person in the early months of pregnancy. The status of the fetus is a matter of supposition. There is "life" in the sperm and ovum even before fertilization. Yet one doesn't consider the "death" of the ovum each month and of millions of sperm after ejaculation to be the "death" of an "unborn child." The term "unborn child" as applied to a fetus begs the question. Spermatoza and ova have no legal status. When pregnancies are interrupted naturally by spontaneous abortion, miscarriage, or stillborn, the fetus is regarded as dead human tissue and is disposed of without legal intervention. In addition, the law has never considered the death of a fetus as a result of abortion to be first-degree murder,¶ the law has called it abortion, with penalties similar to those accorded to misdemeanors. The legislative history of early abortion bills, which weren't even passed until the 1800's, shows that early lawmakers were attempting to protect maternal health, not the fetus.

It is very important that we accurately and honestly recognize the legal, religious, and medical history of fetal life. The intrauterine device and the morning after pill are reducing any distinction between contraception and pregnancy termination. Spontaneous abortion is not thought of as "death." Ten to 50 per cent of all fertilized ova abort spontaneously from a woman's body,[7,8,9] and it would appear that community consensus would today welcome an effective morning after pill—even though it be an abortificant.

Under English common law, abortion of an unquickened fetus was not a crime at all.[6] The English common law considered abortion to be murder only if the fetus was quickened, born alive, lived for a brief period, and then died.[6] Execution of a pregnant woman was delayed for her to give birth to a child only if the fetus had quickened, not just if she was pregnant.[6] The English common law, that it was not a crime to abort an unquickened fetus, was accepted by the vast majority of American courts that have considered the question.[6]

The question of rights from recent court decisions lies not with the fetus, but with the woman and her doctor. A number of American courts have recently held that a woman's right to an abortion in early pregnancy cannot be infringed on the grounds of protecting the "life" of the fetus. In People v. Robb,† the court held that the state could not prohibit abortion from conception to viability of the fetus:

‡American Ethical Union, April 1965; American Lutheran Church, October 14, 1965; New York State Council of Churches, November, 1966; The Protestant Council of the City of New York, December 15, 1966; Episcopal Diocese of Washington, D.C., January, 1967; Christian Action Commission of the General Synod of the Reformed Church in America, February, 1967; American Baptist Convention, May, 1967; Episcopal Diocese of Long Island, May 16, 1967; Unitarian Universalist Association, May 18, 1967; Central Conference of America Rabbis, June, 1967; Union of American Hebrew Congregations, November, 1967; United Presbyterian Church, May 9, 1968; Iowa Council of Churches, June 21, 1968. See also American Jewish Congress, February, 1967; Federation of Jewish Philanthropi of New York, Committee on Social Legislation, February, 1967; Jewish Labor Committee, March, 1967; National Council of Jewish Women, April, 1967; National Board of the Young Women's Christian Association of the U.S.A., May, 1967; Clergymen's Consulation Service, May, 1967. (Statements collected by Harriet F. Pilpel included in a chapter in a treatise published by the Harvard University Press.)

¶See Keeler v. Superior Ct., 2 Cal. 3rd 619, Calif. Sup. Ct. 6/12/70.

†People v. Robb, Cal. Rprt., Cen. Orange Co. Mun. Ct., Jan. 1969; People v. Barksdale, Cal. Rprt., Alameda Co. Mun. Ct., Mar. 1970.

"The primary contention of state interest . . . is that the law is necessary to preserve the life of the unborn. This argument will not stand the test of logic, however. When is there life in the eyes of the law? Certainly not at conception. If there were life present at conception abortion would not be permitted in cases of rape or incest, or the other exceptions any more than it would be permitted to terminate the life of a one-year-old whose life had come as the result of rape or incest."

In Babbitz v. McCann,£ the court held that a woman's right to terminate her pregnancy within the first four months transcended the rights of the fetus. A three-judge federal district court in Texas has indicated that the power of the state is limited to regulating the abortion of a quickened fetus.§ A South Dakota court, in declaring the South Dakota abortion statute unconstitutional, followed Babbitz v. McCann with respect to the rights of the woman as opposed to that of the fetus.#

Attempts to rely on civil cases where children, after birth, claim rights accrued before birth, as in suits for injury caused the child when it was a fetus, or in suits involving inheritance to be distributed to children "alive" at the testator's death, are inapplicable to the status of the fetus under the criminal law of abortion.‡

These civil cases involve judicial definition of language to parallel underlying policy considerations. In matters of inheritance, it is presumed that the testator would want a fetus treated the same as a live child. In addition, no court has ever recognized a fetus as a "person" entitled to protection of life under the due process clause of the Fourteenth Amendment of the United States Constitution. In addition, there has been no civil case that allows recovery where the fetus was stillborn.[6]

Conclusion

The conflict between abortion under the 1967 Colorado abortion statute and euthanasia found to exist by Dr. Crosbie is in actuality a non-existent problem. Neither in law, medicine, or popular opinion is the abortion of an unquickened or non-viable fetus recognized as the taking of "life" of a human being. Permitting termination of pregnancy by abortion in the early months of pregnancy consequently is not in conflict with the rejection of euthanasia. •

£Babbitz v. McCann, 310 F. Supp. 293, E.D. Wis. 1970.
§Roe v. Wade, F. Supp., 314 F. Supp. 1217, N.D. Tex. June 17, 1970.
#State v. Munson, N.W. 2d, C.C.J.C. Pennington Cnty. April 6, 1970.
‡People v. Belous, 80 Cal. Rprt. 354, Cal. Sup. Ct. 1969.

REFERENCES

1 Knutson: When Does a Human Life Begin: Viewpoint of Public Health Professionals, Journal of Public Health, Vol. 57, December, 1967.
2 Hall: New York Abortion Law Survey, American Journal of Obstetrics and Gynecology, Vol. 8, 1182-1183, Dec. 15, 1965.
3 Crowley and Daidlaw: Psychiatric Opinion Regarding Abortion, American J. Psychiat. Vol. 124, 559-562, October, 1967.
4 Rossi, Abortion Laws and Their Victims, Trans-action, Sept./Oct., 1966.
5 Quayle: A Survey of Public Opinion on Abortion in New York, January, 1968, Association for the Study of Abortion Newsletter, Vol. 111, No. 1, Spring, 1968.
6 Means: The Law of New York Concerning Abortion and Status of the Foetus, 1664-1968: A Case of Cessation of Constitutionality, 14 N.Y.L. Forum 411, 412, 1968.
7 Tietze and Martin: Foetal Deaths, Spontaneous and Induced, in the Urban White Population of the U.S., 11 Population Studies 170, 1957.
8 Erhardt, Pregnancy Losses in New York City, 1960, 53 Am. J. Pub. Health, Vol. 53, 1337, 1963.
9 Warburton and Fraser: Spontaneous Abortion Risks in Man, Am. J. Human Genet, Vol. 16, 1, 1964.

PICKER Medical Products

3890 ELM STREET — TEL. 388-5731 — DENVER, COLORADO 80207

Offices also in:
Colorado Springs, Colorado
2236 Glenwood Circle, 635-8768

Salt Lake City, Utah
21 Kensington Street, 487-7519

Albuquerque, New Mexico
113 Sierra Dr., S.E., 255-1288

Medical X-Ray Equipment
Accessories & Film
Nuclear Equipment

A system for continuing medical education

Donald L. Erickson, M. Ed., MPH, Cheyenne, Wyoming*

APPROXIMATELY 270,000 physicians practice medicine in the United States.[1] Most of them have numerous opportunities to attend continuing medical education programs designed to keep them abreast of medical advances and to sharpen their clinical skills. Medical schools, specialty groups, drug companies, medical societies, and voluntary and governmental health agencies invest millions of dollars into year around professional educational efforts.[2] Unfortunately, only a small per cent of practitioners attend these educational programs. In spite of intensive efforts, the American Academy of General Practice has been successful in attracting only about 20 per cent of general practitioners to attend lectures and courses to maintain active membership.[3]

One might ask, in an era of rapid technologic and scientific progress, how does the physician acquire new skills? An equally important question, how does he improve the skills he already has? These questions lead to a more fundamental one—how should continuing medical education providers in this country organize themselves in order to maximize their impact on improved health and well-being of the people? One last question, who should take the leadership for assuring educational quality and effectiveness, medical schools, community hospitals, medical societies or possibly specialty groups, or the federal government?

The intent of this paper is to describe, the relative roles which each of the foregoing groups should perform in a viable continuing medical education system. A system which fosters improvements in the health of the people must not lose sight of the idiosyncratic needs — intellectual and psychological of practitioners. Hence, the task is monumental and the challenge is awesome.

Five precepts serve as guidelines in the formation of an organized system of continuing medical education. They are: (1) educational programs should be geared to the individual learner's needs and goals; (2) subject matter should be such that the participants can apply the knowledge gained, i.e. patient needs provide the frame of reference for teaching-learning; (3) the learner should actively participate in the educational experience; (4) the education of the practitioner should be a lifetime experience; and (5) the educational program should be accessible to and convenient for the participant. If a continuing education system is to be effective then it must place these precepts in perspective and facilitate their continuous application.

Prior to a role analysis of each component in the CME system, a brief description or definition of continuing medical education is in order.

Programs designed primarily to refresh the practicing physician in various aspects of his basic medical education or to inform him of new developments in his field have been traditionally defined as postgraduate medical education. In recent years, "continuing" has replaced the term "postgraduate." The use of "continuing" is more descriptive of the need for continuous updating beyond formal medical training. Continuing medical education is generally pictured as a planned program of study, i.e., a few hours, one to

*Education Specialist, Wyoming Division, WICHE—Mountain States Regional Medical Program, 3100 Henderson Dr.

five days or a month in length, which does not lead to formal advanced standing in the profession. Typically, the planned program of study involves attendance at meetings and/or courses.

Role of State Medical Schools

The history of continuing medical education illuminates the evolving role of medical schools. Abraham Flexner, in his report of 1910, provides an historical background and a point of departure. Flexner, commissioned by the Carnegie Foundation to study medical education needs, recommended that postgraduate schools should affiliate with universities. Postgraduate schools at the turn of the nineteenth century were largely proprietary establishments. Few of these schools had qualified faculty. Not infrequently, faculty was composed of graduate assistants, undergraduate medical students, and a small group of clinicians. Academic and clinical excellence was found to be lacking. Flexner, therefore, urged these schools to "incorporate themselves in accessible universities, taking up university ideals, and submitting to reorganization on university lines."[4]

Since the Flexner Report, a steady trend toward university sponsorship prevailed. Shepherd describes three phases of this growth:

> "Sponsorship has gone through three stages: (a) the proprietary polyclinic hospital, and postgraduate school; (b) the medical society and state board of health independent of the medical school (although using medical school faculty to a large extent); and (c) the medical school as the responsible sponsor and planner, often in cooperation with a medical society."[5]

Clark augments Shepherd's observation and predicts medical schools will continue to increase their participation. Supported by the W. K. Kellogg Foundation, Clark has published a comprehensive chronology of physician continuation education from 1900 to 1965. He concludes his study with the following forecast:

> "Medical schools will allocate an increasing percentage of their total resources, including appropriated or endowed funds, to the postgraduate phase of medical education."[6]

Eleven years after the Flexner Report the first continuing medical education program was formally sponsored by a school of medicine. In 1921, the University of North Carolina absorbed the State Board of Health's continuing education extension plan.[7] The Extension Division took responsibility for administrative details and the Dean of Medicine coordinated medical considerations. The plan involved two circuits of six cities each. Instructors presented two hours of lecture and clinical demonstration. Common medical conditions were discussed from the standpoint of etiology, pathology, diagnosis, and treatment.

As university involvement continued to expand, the University of Michigan organized the first department of postgraduate medicine in 1927.[8] The organization of this department marked "the advent of formal medical school responsibility."[9] The University of Michigan at first offered four and six week on-campus courses. Physicians found it difficult to leave their practice for that length of time, and therefore, eight one-week sessions on special areas were developed. Eventually, an extramural program was organized. It consisted of one day per week programs in various cities for a period of eight weeks.

Shortly after World War II, "47 medical schools offered 491 courses."[10] By 1953, approximately 80 medical teaching institutions offered about 1,800 courses.[11] Hence, by the mid-fifties, continuing medical education was an ongoing program of medical schools. It would seem that medical school faculties and administration view CME as an important responsibility of their schools. However, few schools accept the full order of their responsibility.[12] This indeed is unfortunate for the state medical school is in a position to provide leadership and direction. New physicians completing training should be not only competent practitioners but self-sufficient continuous learners.

During medical training the young physician-student must form a strong tendency toward lifetime learning. When physicians practice medicine without keeping up with clinical advances their alma maters are indeed at fault. The first and foremost function of medical schools in CME, therefore, is attitude formation.

Another function pertains to coordination of CME within their geographic areas of influence. Medical schools should take the initiative, irrespective of town and gown conflicts, toward fostering integration and avoiding duplication of intra and extra mural educational activities. As academic centers of medical excellence, medical schools must acknowledge their obligation to CME. Without dynamic leadership in curriculum development by medical schools, an organized system of CME is impossible; furthermore a non-system will continue to prevail.

"It is unlikely that there will be any sudden sweeping change in the nature of the responsibility for postgraduate medical education assumed by the medical school." According to Howard, changes "will depend in good measure on the willingness of governing boards and administrative officers to devote funds to the activity (CME) and to give recognition to accomplishments in this field in the course of promotion and salary considerations."[13]

Role of American Medical Association

American Medical Association contributions to CME were less than impressive prior to 1955. At that time, the American Medical Association published the first and only comprehensive study of postgraduate medicine in the United States. The study was conducted by Dr. Douglas D. Vollan who spent ten months in the field observing postgraduate education throughout the country. Vollan reports:

"This included attendance at portions of approximately fifty courses, as well as conferences with the postgraduate directors of all the undergraduate, graduate, and postgraduate medical schools in the country. In addition, most of the state medical societies and national specialty societies were visited, as well as a large number of health departments, federal health agencies, foundations, hospitals, clinics, voluntary health agencies, medical asemblies, general educators, adult educators and representatives of similar programs for other professions. Altogether 481 individuals were interviewed at 222 institutions. The data obtained from these visits were supplemented by questionnaires received from 159 of these institutions and organizations. The consumers' viewpoint was obtained by an analysis of questionnaires from 4,923 practicing physicians throughout the United States in late fall of 1953."[14]

The Vollan Report was the Flexner Report of 1955. Briefly, Vollan found postgraduate medical education to be suffering from a lack of clearly defined objectives.[15] Also, the quality of postgraduate instruction varied considerably and all too frequently it was of poor quality;[16] and many physicians were not continuing their education.[17]

Two years after the Vollan Report was published the American Medical Association announced publication of *A Guide Regarding Objectives and Basic Principles of Continuing Medical Education.*[18] Shortly thereafter, in 1961-1962, the American Medical Association sponsored a series of pilot surveys of continuing medical education activities at 20 institutions.[19] These surveys were the beginning of a movement to develop a systematic accreditation program of continuing medical education. Subsequently, 14 of the 20 institutions were accredited by the Council on Medical Education in 1967. By mid March, 1969, 51 institutions and organizations were accredited by the AMA.[20]

Throughout the past decade the AMA has been tooling up to perform an extremely essential role in CME, i.e. accreditation. By setting standards, although subjective as well as ambiguous at present, the AMA is stimulating medical schools to look critically at their continuing medical education programs. Assuring quality programming is the principle function of the AMA in CME.

Role of Community Hospitals

There are slightly less than 6,000 community hospitals in the United States. Of this number, approximately 1,000 employ full or part time directors of medical education. Although directors of medical education (DME) are primarily involved in internship and residency training, they are vital links in the continuing medical education system. The DME interacts daily with practitioners in the clinical setting and also maintains communication and program continuity with affiliated medical schools. Continuing medical education programs in community hospitals without DME's are severely handicapped. Such programs generally lack organization and coordination.

The community hospital is an ideal teaching laboratory for CME. Here practitioners spend a substantial portion of their professional life; furthermore, clinical material for teaching-learning interactions is readily available. Medical schools should continue to conduct intramural courses dealing with highly specialized topics; however, increasing attention must be given to hospital-based educational efforts. Both medical school and community hospital administrators play a role in upgrading hospital-based CME. Monies must be secured to hire at least part time directors of medical education. Administrators should influence their respective boards by pointing out the relationship of CME to improved patient care and hospital efficiency.

The role of community hospitals without DME's is more or less a non-role. If the hospital is to CME as the medical school is to medical education, then a director of medical education is essential.

Role of Federal Government

The unequivocal function of the federal government is to foster cooperative arrangements amongst regional, state and local interests in continuing medical education. The federal government should *facilitate* rather than dictate curricular organization and coordination. Perhaps Regional Medical Programs, which have been financed 100 per cent by the federal government, represents a model of the facilitative role.

Developing cooperative arrangements between medical schools and community hospitals for continuing medical education is a major emphasis of Regional Medical Programs. Marston and Mayer report:

> ". . . it was the firm intention of Congress that regional medical programs be built upon and utilize the existing resources and strengths of a region, including the educational activities of the universities, the hospitals, the professional and specialty organizations, the health departments, the voluntary-agencies, and many other groups which are currently involved in continuing education for the health professions."[21]

At present all sections of the nation are covered by 55 Regional Medical Programs. This galaxy of Programs is quite new, and therefore, it is difficult to predict its long term influence. It is apparent, however, that continuing medical education will find increased input from the federal government in the areas of funding and coordination.

Roles of Specialty Groups and Medical Societies

Specialty groups are primary sources of refresher needs in continuing education; while medical societies are in a position to assure that programs are relevant to needs. In regard to need-assessment, two examples will serve to illustrate this role.

First, the American College of Physicians has recently developed a Medical Knowledge Self-Assessment Test.[22] The test is completely confidential. It includes 700 multiple-choice, clinically oriented questions covering nine areas of the field of internal medicine and is taken in the privacy of the physician's office. When it is completed he sends it to a scoring agency whose sole task is to correct the test and return the results to the individual physician. The agency does not compare or analyze scores. Upon receipt of the test results, the physician interprets his own results and plans an educational program to strengthen the areas where he is weak. A handful of specialties are now developing similar self-assessment tools.

The second example involves the American Board of Orthopaedic Surgery and its investigation into ways and means of improving efficiency and effectiveness of educational process of orthopaedic training. This study has broad implications for continuing medical education. By using the critical-incident technic, nine components of competence were identified: (1) skill in gathering clinical information; (2) effectiveness in using specific diagnostic methods; (3) competence in developing a diagnosis; (4) judgment and skill in implementing treatment; (5) judgment in deciding appropriate care; (6) effectiveness in treating emergency patients; (7) competence in providing continuing care; (8) effectiveness of physician-patient relationships; and (9) accepting responsibility for welfare of patients.[23]

State and local medical societies, as affiliates of the American Medical Association,

should be potent forces in assuring meaningful CME programs. They are medical organizations which respond the quickest to collective physician discontent. Traditionally, concerted efforts for change have revolved around medical-legal-political affairs. Few societies are organized for continuing education; therefore, if they are to be influential in the educational area, they must establish a structure which promotes educational relevance.

As mentioned earlier, advancing a system for continuing medical education requires money. Not only at the medical school and community hospital levels, but within the medical societies as well. Medical societies should commit at least 10 per cent of their annual budgets to CME. Each society should have a committee on continuing education—in addition to annual meeting or monthly program planning committees. When CME programs sponsored either by medical schools or community hospitals appear irrelevant to practitioners, medical societies can provide forums for exchange of points of view and development of solutions to educational problems.

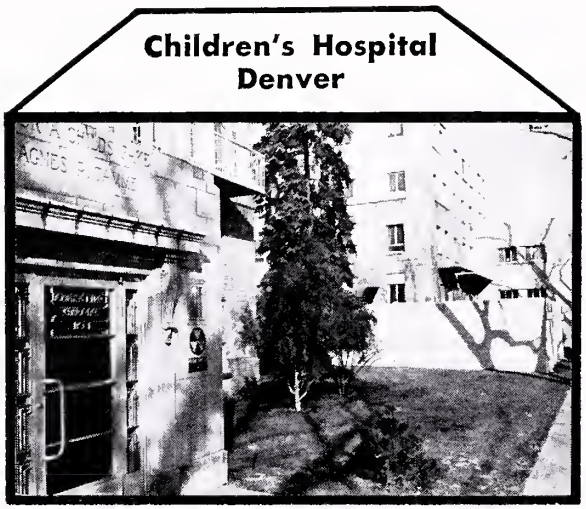
An Overview

This paper has given emphasis to the responsibility of medical schools in CME. Medical schools should take initiative for curriculum planning, provide models of clinical excellence, and most importantly, foster positive attitudes toward lifetime learning. The community hospital as the teaching-learning environment has also been stressed. Further, the federal government, through regional medical programs, should function as a catalyst for intraregional cooperation; the AMA should assure educational quality through its growing program of accreditation; and, specialty groups should identify educational needs and medical societies assure relevance to ongoing needs of practitioners. Hence, the building blocks for a system of continuing medical education. None of these blocks is mutually exclusive of the others. There should be an interface for planning and a dovetailing of mutual interests. Sub systems —networks within the system—will vary across the country; however, the building blocks described herein should appear in all networks.

Finally, the need for national unity (not uniformity) places endless stress on the cohesive masonry of the system. Latitude for multiple approaches within a spirit of cooperation provide both program innovation and institutional coordination. Administrators and educators should seek ways to strengthen existing networks and promulgate cooperative efforts to form new ones. They, along with practitioners, must press forward in one of the most critical and underdeveloped aspects of medical education—the four decades that follow the one decade of formal training. •

REFERENCES

1 Theodore, Christ N., and Sutter, Gerald E.: Distribution of Physicians, Hospitals, and Hospital Beds in the U.S., Chicago: American Medical Association, 1966.
2 Harris, Jerome J.: "Survey of Medical Communication Sources Available for Continuing Physician Education," The Journal of Medical Education, 41:737-755, August, 1966.
3 The Physicians' Continuing Education. New York: American Heart Association, p. 9, 1961.
4 Flexner, Abraham: Medical Education in the United States and Canada, New York: The Carnegie Foundation for the Advancement of Teaching, p. 177, 1910.
5 Shepherd, Glen: "History of Continuation Medical Education in the United States since 1930," The Journal of Medical Education, 35:741, 1960.
6 Clark, Ira C.: The Development of Physician Continuation Education, Iowa City: Health Care Research Series #3, University of Iowa, p. 73, 1966.
7 Ibid. p. 30.
8 Bruce, James: "Postgraduate Education in Medicine," Journal of the Michigan State Medical Society, 36:369-377, June, 1937.
9 Clark, Ira C. Op. cit., p. 32.
10 Ibid. p. 42.
11 Vollan, Douglas: Op. cit., p. 115.
12 Howard, Robert B.: "The Future Role of the Medical School in Continuing Medical Education," Journal of Medical Education, 38:28-33, 1963.
13 Ibid.
14 Vollan, Douglas. Op. cit., p. 10.
15 Ibid. p. 137.
16 Ibid. p. 140.
17 Ibid, p. 141.
18 American Medical Association. A Guide Regarding Objectives and Basic Principles of Continuing Medical Education Programs, Chicago, Revised 1967.
19 Ruhe, William C. H.: "Problems in Accreditation of Continuing Education Programs," The Journal of Medical Education, 43:815, July, 1968.
20 Personal Interview with Miss Polly Cline, Administrative Secretary, Continuing Education Accreditation Program, AMA, Chicago, March 17, 1969.
21 Marston, Robert Q., and Mayer, William D.: "The Interdependence of Regional Medical Programs and Continuing Education," The Journal of Medical Education, 42:123, February, 1967.
22 Elkinton, J. R.: "Self-Assessment of Knowledge," Annals of Internal Medicine, 68:247-249, January, 1968.
23 Miller, George E.: "The Orthopaedic Training Study," The Journal of the American Medical Association, 206:602, October 14, 1968.



Neonatal infection due to Group B streptococcus

Ralph A. Franciosi, MD,
Robert A. Zimmerman, Ph.D.,*
Blaise E. Favara, MD, and
Joseph Butterfield, MD

LANCEFIELD GROUP B streptococcus (Streptococcus agalactiae, Streptococcus mastitidis) is a documented human and animal pathogen.[1-13] The presence of this organism in the vagina of pregnant women is related to neonatal infection.[3,11]

This report was prompted by the occurrence of Group B streptococcal infection in five neonates within an 8-month period (July 1969-February 1970). In addition to reviewing the clinical records, bacteriologic results, and post-mortem findings on these patients, a similar review of all infants with neonatal sepsis at our hospital (February 1969-February 1970) was performed in order to place this unexpected experience in perspective.

Materials and Methods

Initial bacteriologic examination was performed at Denver Children's Hospital. Beta-hemolytic streptococcal isolates were examined by fluorescent microscopy for identification of Group A organisms. Non Group A streptococci isolated from patients described in this report were forwarded to the Streptococcal Disease Section, National Communicable Disease Center, Fort Collins, Colorado, for positive identification. The swabs were streaked directly onto plates containing neopeptone agar with 5 per cent sheep blood. A Taxos A disc was placed on the surface to determine bacitracin sensitivity and the plates were incubated at 37°C for 18 hours. Colonies were picked to 30 ml of Todd-Hewitt broth. After incubation for 18 hours at 37°C, acid extracts were prepared and the organisms grouped and typed (cases 3 and 4) by Lancefield's methods.[14-16]

Case 3 was submitted by Dr. Lewis A. Kidder, Weld County General Hospital, Greeley, Colorado.

*From the Department of Pathology, Denver Children's Hospital, Denver, Colorado. Dr. Zimmerman is Chief, Streptococcal Disease Section, National Communicable Disease Center, Health Service and Mental Health Administration, U.S. Department of Health, Education, and Welfare, Ecological Investigations Program, Fort Collins, Colorado.

CASE REPORTS

Case 1: A 4 pound 9 ounce (2,068 gm) Caucasian male who delivered at 36 weeks gestation to a 27-year-old primagravida. The antenatal history was uneventful and neither prolonged labor nor prolonged rupture of the placental membranes was noted. Progressive tachypnea, cyanosis, and intercostal retraction, noted within several hours after birth, led to transfer to Denver Children's Hospital at 13 hours of age. The infant was moribund on admission and expired within 1 hour. No antibiotics were administered.

Post mortem examination was performed three hours after death. The significant findings were limited to the lungs and scalp. The combined weight of the lungs was normal. The cut surface was firm dark red with decreased crepitance. Microscopic examination showed an extensive pneumonia with many alveoi containing neutrophils, red blood cells, squames, and gram positive cocci (Fig. 1). The scalp showed subgaleal hemorrhage over the occipital region. Cultures of the heart blood and lung grew Group B streptococci.

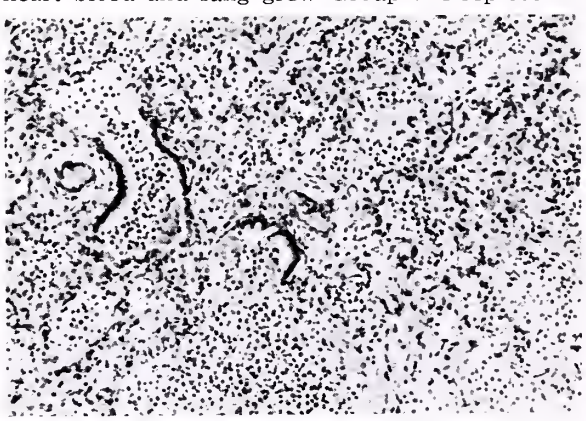


Fig. 1. Lung with marked inflammatory reaction composed of neuthrophils and macrophages. (x 125)

Case 2: A 5 pound 2 ounce (2,327 gm) Caucasian male was delivered at 35 weeks gestation to a 24-year-old primagravida. The gestational history was uneventful. The placental membrances ruptured 26 hours prior to delivery. Tachypnea, cyanosis, intercostal retraction and episodes of apnea began several hours after birth, necessitating admission to Denver Children's Hospital at six hours of age. Progressive respiratory distresss with frequent episodes of apnea resulted in death at 14 hours of age. Antemortem cultures of the throat, blood, and external ear canal grew Group B streptococci. Antibiotics were not administered.

Post mortem examination was performed 15 hours after death. Gross examination revealed multiple petechiae in the thymus and on the pleural and peritoneal surfaces. Bilateral hemopneumothorax was noted with 18 ml of air and 24 ml of blood in the right pleural space and 38 ml of air and 14 ml of blood in the left. The combined weight of the lungs was within normal limits; however, each showed irregular aeration and the cut surface exuded a frothy red fluid. The stomach contained multiple superficial ulcers with adherent brown mucoid material. The liver had a small subcapsular hematoma on the anterior surface of the right lobe. Microscopic examination of the lungs showed most alveoli to contain colonies of gram positive cocci, neutrophils, and squames. A small number of inflammatory cells and bacteria were noted in the subpleural areas. Air cysts, apparently related to resuscitation, were present. Colonies of gram positive cocci were present in cerebral vessels, but no inflammatory reaction was noted. Cultures of heart blood, lung, and cerebrospinal fluid grew Group B streptococci.

Case 3: A 6 pound 11½ ounce (3,064 gm) Caucasian male infant was delivered spontaneously at 35 weeks gestation. The mother was a 25-year-old gravida 4 para 3. Although the antenatal history was uneventful, the infant was born with the umbilical cord wrapped loosely around the neck. The Apgar at birth was 8, and the infant had no abnormalities. Twenty-five hours after birth the patient was observed to be mottled, hypotonic, pale, and cyanotic with ineffectual gasping respirations. The fontanelles were tense and bulging and the pupils were irregular and fixed with the right larger than the left. An x-ray showed changes compatible with a moderate respiratory distress syndrome, either hyaline membrane disease or aspiration of amniotic contents. The patient became jaundiced and his condition worsened over the next 4 hours. He died at 32 hours of age following an episode of apnea. Antibiotics were not administered.

Post mortem examination was performed four hours after death. Gross examination revealed the combined weight of the lungs to be within normal limits. The cut surface of each lung was dark red and firm with decreased crepitance. There was extensive subarachnoid hemorrhage diffusely over the cerebral hemispheres. The cut surface of the brain revealed multiple petechiae diffusely throughout the cortex of both cerebral hemispheres. Microscopic examination of the lungs showed many neutrophils, macrophages, red blood cells, and fibrin within alveoli. In addition, neutrophils were noted within the alveolar septa. Sections of brain showed extensive hemorrhage into the subarachnoid space and a neutrophilic infiltrate. There were extensive petechial hemorrhages and marked congestion throughout the cortex and white matter of the cerebrum. Several vessels contained fibrin thrombi. The adrenals showed large areas of hemorrhagic necrosis in the cortex with neuthrophilic and lymphocytic infiltrates. No fibrin thrombi were noted. Cultures of throat, rectum, and blood grew Group B type Ia streptococci.

Case 4: A 2 pound 8 ounce (1,235 gm) Caucasian male was delivered at 24 weeks gestation to a 22-year-old gravida 2 para 2. The antenatal history was uneventful and neither prolonged labor nor prolonged rupture of the placental membranes was noted. Grunting respirations, sternal retraction, and tachypnea were noted at minutes of age, with severe respiratory distress and marked hypotonia.

The hospital course centered around the therapy of moderate hypoxia, acidosis, and hypercapnea caused by respiratory insufficiency. The infant required prolonged therapy in an incubator with 90-100 per cent oxygen saturation. Clinical improvement let to gavage feedings on the seventh hospital day. An umbilical venous catheter and antibiotic therapy (penicillin and kanamycin) instituted upon admission were discontinued on the eleventh hospital day. A change in the infant's condition was noted on the eighteenth day with the occurrence of frequent apnea episodes and decreased responsiveness. The infant died on the twentieth day.

Post mortem examination was performed 27 hours after death. Gross examination revealed no significant alterations. Microscopic examination of the lungs revealed alternating foci of atelectasis with hyperaeration. The patient alveoli contained macrophages with pink material within their cytoplasm and plasma transudate. In several areas alveoli contained gram positive cocci. The brain showed colonies of gram positive cocci within subependymal blood vessels. The ependymal lining of the lateral ventricles showed focal areas of disruption and gliosis. Cultures of heart blood grew Group B streptococci type Ia and Pseudomonas. Lung and cerebrospinal fluid cultures were sterile.

Case 5: A 28-day old Caucasian male was admitted to Denver Children's Hospital on July 11, 1969, with meningitis. He had been well until 16 hours prior to admission when lethargy and fever were noted. Past medical history was that of a term infant delivered by cesarean section because of prolonged rupture of the placental membranes (greater than 48 hours) without the onset of labor.

The immediate newborn period was uneventful and he was discharged in good health. His weight gain and development at home appeared normal.

Physical examination upon admission revealed a critically ill infant with irritability, lethargy, shrill cry, and irregular respirations. Temperature was 99.8°F (rectal), pulse 164/minute, and respirations irregular at 44/minute. The anterior fontanele was bulging and tense. The eyes had an upward stare (doll's eye movement). Brudzinski's and Kernig's signs were present. Palpation of the abdomen delineated a soft cystic mass in the right midabdomen separate from the liver. Laboratory studies on admission revealed a hemoglobin of 14.1 gm/100 ml; white blood cell count of 4,900/cu mm with a differential of 51% polys, 14% bands, and 35% lymphocytes; blood urea nitrogen 6 mg/100 ml; creatinine 0.4 mg/100 ml; and 2+ glucose in the urine. Lumbar puncture revealed turbid cerebrospinal fluid containing 28,600 neutrophils per cu mm; glucose 0 with a blood glucose of 119 mg/100 ml; protein 415 mg/100 ml; and gram positive intra and extracellular cocci. Cultures of the cerebrospinal fluid grew Group B streptococcus as did cultures from the nasopharynx and blood. An intravenous pyelogram revealed bilateral hydronephrosis, more marked on the right. The site of obstruction was not demonstrated; it was assumed to be at the uretero-pelvic junction.

Antibiotic treatment was begun upon admission with intravenous ampicillin, 200 mg every four hours, and intramuscular kanamycin, 40 mg every 12 hours. His condition improved rapidly, allowing the creation of bilateral cutaneous pyelostomies on the fifth hospital day. The pyelostomies drained satisfactorily, and abundant urine was also excreted into the urinary bladder. A spinal tap performed on the thirteenth hospital day after discontinuation of antibiotic therapy revealed no white blood cells, sugar of 24 mg/100 ml, protein of 115 mg/100 ml and sterile cultures. He was discharged in good health on the fifteenth hospital day.

Results

Table 1 lists the 40 positive blood cultures noted in our newborn nursery (742 admissions) during the period February 1969 through February 1970. Only patients with clinical signs compatible with sepsis[17-19] or evidence of sepsis at autopsy were considered septic. The fatalities listed were presumed due to sepsis since patients with severe congenital malformations, such as hypoplastic left heart or Arnold-Chiari malformation, were excluded. All Group B streptococci were sensitive to penicillin, erythromycin, and ampicillin. The pseudomonas isolated from Case 4 was sensitive to erythromycin, kanamycin, colistin, and gentamycin.

Discussion

The five neonates presented demonstrated infection with Group B streptococci. Three cases (case 1, 2, 3) had pneumonitis secondary to aspiration of infected amniotic fluid. The septicemia in these cases probably resulted from organisms penetrating the pulmonary capillaries. This mode of infection is well documented in the "amniotic infection syndrome."[20-22] The fourth case acquired septicemia due to Group B streptococcus and

TABLE 1
POSITIVE BLOOD CULTURES AT DENVER CHILDREN'S HOSPITAL
FEBRUARY 1969 — FEBRUARY 1970

Organism	No. Patients	Sepsis	Fatality from sepsis
E. coli	5	4	2
Group B streptococci	* 4	4	3
Pseudomonas	3	3	2
Enterobacter	3	2	2
Klebsiella	2	1	1
Group B streptococci + Pseudomonas	1	1	1
Salmonella Arizona II	1	1	0
Corynebacterium species	2	1	0
Group A streptococci	1	1	0
Staphylococcus Coag. +	1	0	0
Gram + rod (not Listeria monocytogenes)	2	0	0
E. coli + Group B streptococci	1	0	0
Staphylococcus coag. —	12	0	0
Staphylococcus coag. — & E. coli	1	0	0
Alpha streptococci	1	0	0
TOTAL	40	18	11

*Includes submitted case (case 3)

Pseudomonas during the second week of hospitalization. The absence of inflammation at autopsy suggested a late infection. The source of infection is unknown. The surviving patient had severe meningitis and septicemia acquired late in the neonatal period. The presence of a positive nasopharyngeal culture suggests this site as the origin of the infection.

Group B streptococci have been implicated in human disease, including meningitis,[2,4,5,7,13] puerperal infections,[3,12] wound infections,[3] and urinary tract infections.[3,8,11] In a recent family study,[23] Group B streptococci were the most common non-Group A beta-hemolytic streptococci isolated and accounted for 1.5 per cent of the total cultures. Signs and symptoms of an upper respiratory infection, predominantly injected pharynx, enlarged tonsils and cervical adenopathy, were associated with 36 per cent of the Group B isolations.

Approximately 10 per cent of the 350 individuals studied carried Group B at least once, and almost half of the isolations were from females over 15 years of age. This study supports the high carrier rate of Group B streptococci reported in nursery personnel.[10]

In reported cases infected with Group B streptococci, high risk groups are diabetics,[1,3,4] pregnant women[3,11,12] and newborn infants.[1-11,13] The latter groups are pertinent to this report and will be discussed further. Group B streptococci can be cultured from the vagina of asymptomatic women.[3,11] This correlates with Group B infection in the fetus and newborn in the absence of clinical vaginitis. The mode of infection is an ascending amniotic infection.[3,9,20-22] Although the newborn could acquire an infection by passage through the birth canal, this is extremely difficult to document. Occurrence of Group B infection in the neonatal period, which is not acquired from the mother, usually presents as meningitis.[1] The etiology is not clear, however, in premature infants who acquire the infection after a prolonged hospitalization carriers among nursery personnel should be sought.[10]

The rare occurrence of Group A streptococcal infections in the newborn may be related to placental transfer of type specific antibody[24] or the absence of Group A streptococci from the vaginal flora. The apparent frequency of Group B streptococcal infection

—The lowest priced tetracycline—nystatin combination available—

in newborns seems related to the presence of Group B streptococci in the vaginal fora. Indeed, contrary to one report in the literature, preliminary studies indicate that Group B streptococcal infection in newborns is related to a specific type (Ia). The placental transfer of type specific Group B antibodies is being investigated.

Identification of Group B streptococci can be difficult. In skilled hands observation of colonial morphology and a double zone of beta hemolysis on blood agar (horse or sheep) after refrigerator incubation are helpful but not always specific.[25,26] Indeed, in our experience with seven cases of Group B streptococcal infection at all ages, two cases were bacitracin positive and hence could have been classified as Group A. However, the fluorescent antibody technic was helpful in excluding Group A streptococci. Absolute identification of Group B streptococci and its types (Ia, Ib, Ii, II, III) is dependent upon serological methods.[14-16]

Our experience with neonatal sepsis (Table 1) supports other studies showing the frequent occurrence of gram negative rods as the offending agent.[17,18] The surprising observation was the frequency of Group B streptococcal infection with an associated high mortality. A similar experience was reported by Eickhoff.[3] A prospective study is in progress in pregnant women to determine the incidence of Group B streptococci in the nasopharynx and vagina and its relationship to neonatal infection. •

REFERENCES

[1] Mannik, M., Baringer, J. R., and Stokes, J.: Infections due to Group B beta-hemolytic streptococci. New Eng. J. Med., 266:910, 1962.

[2] Keitel, H. G., Hananian, J., Ting, R., Prince, L. N., and Randall, E.: Meningitis in the newborn infant. J. Pediat., 61:39, 1962.

[3] Eickhoff, T. C., Klein, J. O., Daly, A. K., Ingall, D., and Finland, M.: Neonatal sepsis and other infections due to Group B beta-hemolytic streptococci. New Eng. J. Med., 271:1223, 1964.

[4] Lazarus, J. M., Sellers, D. P., and Marine, W. M.: Meningitis due to the Group B beta-hemolytic streptococcus. New Eng. J. Med., 272:146, 1965.

[5] Van Peenen, D., Cannon, R. E., and Seibert, D. J.: Group B beta-hemolytic streptococci causing fatal meningitis in an infant. Military Med., 130:65, 1965.

[6] Maher, E., and Irwin, R. C.: Group B streptococcal infection in infancy. A case report and review. Pediatrics, 38:659, 1966.

[7] Winterbauer, R. H., Fortuine, R., and Eickhoff, T. C.: Unusual occurrence of neonatal meningitis due to Group B beta-hemolytic streptococci. Pediatrics, 38:661, 1966.

[8] Feingold, D. S., Stagg, N. L., and Kunz, L. J.: Extrarespiratory streptococcal infections. New Eng. J. Med., 275:356, 1966.

[9] Canet, J., Durieux, R., Pesnel, G., Fabre, A., Dehan, M., Dubois, J. P., Bret, A. J., and Lajouanine, P.: Infection neo-natale a streptococoque B. Arch. Franc. Ped., 24:1045, 1967.

[10] MacKnight, J. F., Ellis, P. J., Jensen, K. A., and Franz, B.: Group B streptococci in neonatal deaths. Applied Microbiology, 17:926, 1969.

[11] Hood, M., Janney, A., and Dameron, G.: Beta-hemolytic streptococcus Group B associated with problems of the perinatal period. Am. J. Obst. & Gynec., 82:809, 1961.

[12] Fry, R. M.: Fatal infections by haemolytic streptococcus Group B. The Lancet, 1:199, 1938.

[13] Jones, H. E., and Howells, C. H. L.: Neonatal meningitis due to Streptococcus agalactiae. Postgrad. Med. J. 44:549, 1968.

[14] Lancefield, R. C.: Micro-precipiten-technic for classifying hemolytic streptococci, and improved methods for producing antisera. Proc. Soc. Exp. Biol. Med., 38:473, 1938.

[15] Lancefield, R. C.: A serological differentiation of specific types of bovine hemolytic streptococci (Group B). J. Exp. Med., 59:441, 1934.

[16] Lancefield, R. C.: Two serological types of Group B hemolytic streptococci with related but not identical type-specific substances. J. Exp. Med., 67:25, 1938.

[17] Gluc, L., Wood, H. F., and Fousek, M. D.: Septicemia of the newborn. Pediat. Clin. N. Amer., 13:1131, 1966.

[18] McCracken, G. H., and Shinefield, H. R.: Changes in the pattern of neonatal septicemia and meningitis. Amer. J. Dis. Child., 112:33, 1966.

[19] Cotton, D. G.: Neonatal sepsis. Practitioner, 197:338, 1966.

[20] Benirschke, K.: Routes and types of infection in the fetus and the newborn. Amer. J. Dis. Child., 99:714, 1960.

[21] Blanc, W. A.: Pathways of fetal and early neonatal infection. J. Pediat., 59:473, 1961.

[22] Franciosi, R. A., and Jarzynski, D. J.: Mycotic abortion in man. J. of Reproductive Med., 4:25, 1970.

[23] Zimmerman, R. A.: Personal communication.

[24] Zimmerman, R. A., and Hill, H. R.: Placental transfer of Group A type-specific streptococcal antibody. Pediatrics, 43:809, 1969.

[25] El Ghorowry, A. A.: Comparative studies of Group B streptococci of human and bovine origin. Amer. J. of Public Health, 40:1273, 1950.

[26] Braunstein, H., Tucker, E. B., and Gibson, B. C.: Identification and significance of Streptococcus agalactiae (Lancefield Group B). Amer. J. Clin. Path., 51:207, 1969.

"Welcome back, Ann"
As adjunctive therapy
DOUBLE STRENGTH
Orenzyme®
Bitabs
One tablet q.i.d.
Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units; equivalent in tryptic activity to 40 mg. of N.F. trypsin
Reduces swelling
Hastens healing
Speeds recovery
trauma
One tablet q.i.d.
Indications: When used as adjunctive therapy for the rapid resolution of inflammation and edema, good results have been obtained in:
□ Accidental Trauma □ Postoperative Tissue Reactions.
Other conventional measures of treatment should be used as indicated. In infection, appropriate anti-infective therapy should be given.
Contraindications: ORENZYME BITABS should not be given to patients with a known sensitivity to trypsin or chymotrypsin.
Precautions: It should be used with caution in patients with abnormality of the blood clotting mechanism such as hemophilia, or with severe hepatic or renal disease. Safe use in pregnancy has not been established.
Adverse Reactions: Adverse reactions with ORENZYME have been reported infrequently. Reports include allergic manifestations (rash, urticaria, itching), gastrointestinal upset and increased speed of dissolution of animal-origin surgical sutures. There have been isolated reports of anaphylactic shock, albuminuria and hematuria. Increased tendency to bleed has also been reported but, in controlled studies, it has been seen with equal incidence in placebo-treated groups. (See Precautions.) It is recommended that if side effects occur medication be discontinued.
Dosage: One tablet q.i.d.
THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144
TRADEMARK: BITABS U.S. PATENT NO. 3,004,893 9/70 0-009A 161

A
BUILDING BLOCK
TO RECOVERY

Orenzyme® Bitabs

Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units; equivalent in tryptic activity to 40 mg. of N.F. trypsin

The causes of vaginitis are multiple

Trichomonads... monilia... bacteria
You can depend on AVC—comprehensive therapy that combats all three major vaginal pathogens, alone or in combination.

AVC
Cream (aminacrine hydrochlaride 0.2%, sulfanilamide 15.0%, allantain 2.0%)

Suppositories (aminacrine hydrochloride 0.014 Gm., sulfanilamide 1.05 Gm., allantain 0.14 Gm.)

Contraindications: Known sensitivity to sulfonomides.
Precautions/Adverse Reactions: The usuol precoutions for topicol ond systemic sulfonomides should be observed becouse of the possibility of obsorption. Burning, increosed locol discomfort, skin rosh, urticorio or other monifestotions of sulfonomide toxicity ore reosons to discontinue treotment.
Dosage: One opplicotorful or one suppository introvoginally once or twice doily.
Supplied: Creom—Four-ounce tube with or without opplicotor. Suppositories—Box of 12 with opplicotor.

TRADEMARK: AVC AV-104 2/71 Y-149

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

AVC
The treatment is singular

The pros and cons of National Health Insurance - -*

The medical profession's view

Drew M. Petersen, MD, Ogden, Utah

THE INVITATION I received to be on this program requested, at least by implication, that I give the medical profession's views on national health insurance, universal or compulsory—or whatever you want to call it. There are subjects of greater importance when we consider the over-all problem, challenge, or opportunity to bring the best medical and health care to all of the people in this huge nation. Unfortunately for the public—very few of whom really understand or appreciate the complex situation—national health insurance is being held up by many political leaders, much of the press and others as the single cure for a multitude of problems. It's not. At best, it would solve one part of one problem.

Let's start with some background on our nation's medical and health care system, some of its achievements, and some of its problems. I think a little basic information will help us more clearly face the specific but narrow subject of national health insurance. What about the much-debated medical and health care system? As a physician and as a holder of various committee positions in the American Medical Association, I have no choice but to say that it is inadequate to meet all the needs of this nation of 200 million souls. I neither excuse nor condone that inadequacy. But I do hasten to point out that it is not by any means unique. Regardless of what some of our critics like to claim, medicine is not the only field that has failed to function perfectly and universally throughout this land. It is true that some people do not have immediate access to the best possible medical and health care. It is equally true that they do not have direct access to the best possible legal services. They also do not have direct access to the best possible education, to adequate nutritious food, to decent housing, to elementary sanitation, to jobs good enough to provide an adequate livelihood for their families. I would add that not just a minority of our citizens, but the vast majority do not have access to drinking water that is as clean as it should be, nor to air they can breathe without danger.

Now let's turn to the medical and health care system. It needs improvement. It will be improved, but never to the point that you or I or the AMA will be satisfied with it. No matter how good medical and health care gets, people always want it to be better, particularly the medical profession itself. We who are part of the medical and health care system are always discontented with the status quo. If we hadn't been in the past few decades, people would still be dying of smallpox, diphtheria, yellow fever, tetanus, typhus and polio—to mention just a few diseases that have just about been eliminated in this nation. The discontent of physicians with what they are able to do assures you that your life is healthier and better than your parent's was, and that your children's will be better than yours.

*Presented at the Governor's Conference on Health Care Systems, Helena, Montana, April 17, 1970. Dr. Petersen is Member, Committee on Health Care of the Poor; Member, Council on Medical Service, Chairman, Committee on Community Health Care of the American Medical Association.

The biggest challenges of today, however, go beyond finding ways to cure disease or eliminate it. The scientific problems of medicine remain large, indeed. But they are almost over-shadowed by the socio-economic ones. To show you what I mean, the AMA not long ago identified eight of the most pressing health problems facing the medical profession and the nation. The list could be longer, but it is long enough to give us plenty to think about. Here it is:

1. The acute shortage of health manpower —that includes physicians and all other professionals, technicians and workers in the health care industry. This field is already the nation's third largest employer and will become number one during the 1970's.

2. The rising cost of medical and health care. That, like the shortage of manpower, has been caused by the fantastic growth in demand for services of every conceivable description, a demand that grew so fast and so great that neither the number of people nor the availability of facilities could keep up.

3. The problem of financing medical and health care. There are a number of possible sources, including the patient himself . . . private insurance . . . business and labor union programs . . . existing government programs . . . and any others that can be devised.

4. Mental health. It continues to be the nation's number one health problem in terms of cost, use of hospital beds and human misery.

5. Pollution of the air, water and land of this country.

6. Alcoholism and drug addiction.

7. Health care of the poor in the inner cities . . . as well as of persons in isolated rural areas. Neither is adequately served by health institutions or personnel.

8. Malnutrition. Most people confuse this with hunger. Certainly it includes hunger, but since it also includes poor diet and poor eating habits, it is a problem that reaches into every social level and every level of income. It undermines the health of the fat rich man as well as the undernourished poor one.

When you look at all of those, plus others that could be listed, you must be struck—as we in the medical profession are—by the realization that none of them can be solved by any single program or activity, no matter how well it is devised and no matter how popular it may appear. Since this program is devoted to national health insurance, let's apply it to these problems. It doesn't touch seven out of the eight! If such a program were in effect starting tomorrow morning . . . if all medical care went free . . . if all medicine was free . . . if there were no charge for going into a hospital or nursing home . . . how would that affect the problems? It wouldn't create any more physicians, nurses or technicians. It wouldn't stop the rising cost of providing the care. It wouldn't prevent people from having mental and emotional problems. It wouldn't clear up pollution. It wouldn't stop people from drinking or experimenting with drugs. It wouldn't make any more people or health centers available in slums or remote rural areas. And it wouldn't do anything about malnutrition. All of those massive problems demand massive solutions. Solutions will come only when the nation as a whole, makes up its mind that they must come. And devising those solutions will then require the best efforts, the very best cooperative efforts, of everyone—the nation's people, its communities, its secondary educational system, its medical schools, its colleges and universities, its labor unions, its business and industry and its government . . . in addition to its medical profession and all of the organizations of all of the administrators, professionals, technicians and workers in the health field.

Any program of national health insurance would, at best, affect only the third item I mentioned in that list of eight. It would affect the financing of medical and health care. For that reason—because the idea would help solve one of the problems—we are very interested in it. And we are not only interested in it. We are doing something about it. The AMA, as a matter of fact, has developed its own program of national health insurance. It was adopted by our governing body, the House of Delegates, in 1968. We have been supporting it since that time and have had

a few opportunities to present it to congressional committees. Most recently, early in March of this year, AMA representatives discussed the proposal at an executive session of the House Ways and Means committee.

The AMA program that was born in 1968 had its conception approximately 18 months earlier when the Board of Trustees created its Committee on Health Care Financing. The committee's first function was to develop a few premises on which its findings should be based. I'm not going to list all of those guiding principles, but let me give you a few of the most important ones. First — the simplest and most important of all—was that adequate health care should be available to all who need it. Alongside that was the statement that methods of financing should be developed to help all persons get the health care they want and need. Here are a few more of the foundation stones on which the committee built its program. Giving and receiving health care should remain predominantly private, with as little interference as possible with the relationship between patient and physician. Methods of financing care should not limit the way the care is given . . . or interfere with the patient's choice of where he shall get help, or from whom. Voluntary insurance purchased by individuals or through business and industrial groups should be encouraged. The government should not assume responsibility for people who can provide for themselves. To the extent possible, the system should use existing financing methods — Blue Shield, Blue Cross, insurance companies, group practice plans or other voluntary programs. The highest amount possible of all money spent in the program should pay for services. Administrative cost should be held to a minimum. Financing should be flexible. It should allow for money from both private and public sources. And finally, the financing system should be available to all of the public . . . not just to special groups.

The AMA's hope is to offer to the people—and to the congress for passage into law—a program that will do the job that needs to be done, and do it in a way that physicians know is the best way to cover the best possible medical and health care. We want to avoid the mistakes and problems that we feel were built into medicare and medicaid. Those are health care financing programs, but they were designed by politicians and administrators—not by physicians. And they work. They work because this nation's doctors have made them work. We opposed medicare for all the years it was a proposal . . . before it became law. Since then, we have been taking care of patients under its provisions. We opposed it primarily because it was to pay expenses for people who had reached a certain age, regardless of their own ability to pay. Medicare, in effect, takes the taxes paid by the file clerk and uses them to pay the hospital bill of the chairman of the board. We didn't think that was fair when the bill was proposed. And we still don't. We also warned everyone who would listen that the two programs—medicare and medicaid—would cost a great deal more than their supporters cared to admit. We were right. They had grossly underestimated the cost, which has run more than double what they promised . . . and is expected to double again in five years. That means the programs, which are costing taxpayers 10 billion dollars this year, will cost $20 billion by 1975.

Let me digress a moment here to point out that many people are now trying to defend the original planning of the programs by blaming the medical profession for the runaway costs. That simply is not true. The most recent example of trying to discredit the very physicians who have made the two programs work at all was a report on medicare-medicaid "problems, issues and alternatives," issued early this year by the staff of the Senate Finance committee. I won't take your time for a detailed analysis of the report. But I do want to point out a few things it said that were incorrect. The report indicated that the programs are riddled with fraud and abuse by physicians. No such thing.

Are we, then, totally without fault? Unfortunately not. The Social Security administration has reported that 2,500 cases of suspected abuse have been investigated during three and a half years of medicare. And keep in mind that the program pays 30 million doctor bills a year and 12 million bills a year

from hospitals and other institutions. So far, only 13 individuals and organizations have actually been charged with fraud. I'll put that record of honesty against the record of any group in this nation—or against the population as a whole. The report indicates that physicians are responsible for the major portion of the increased cost of the programs. Examination of actual figures, including the consumer price index, shows that the increase in payments to physicians from 1968 to 1969 was less than 3 per cent of the total federal expenditures for both programs. Some of that small increase was due to higher physician fees. Much more of it was caused by more people using medicaid services more often. If the two causes are divided, only 1.1 per cent of the total federal expenditures for both programs in 1969 can be attributed to higher physician fees.

Other mistakes have been made in stories published since the report came out. A payment of more than $300,000 suposedly made to one Colorado physician was actually the total of all fees paid to 124 physicians at Colorado General Hospital. A California clinic was reported to have received $900,000. Actually, the payments went to 130 physicians who work in the clinic—an average of $7,000 per doctor—and that clinic takes care of three homes for the elderly. Finally, the physicians of Indiana were accused of milking medicaid for huge sums of money in 1968. The fact is, Indiana did not have a medicaid program until January of 1970.

We at the AMA—and a great many physicians, whether AMA members or not—have a strong feeling that you don't correct a complicated, overly expensive government program by expanding it to cover everybody in the country. Instead, you come up with a new idea. A program . . . a system of financing care . . . that will serve all of the people well, but will give special help only to the ones who need it. The people I know, inside and outside of the medical profession, just don't believe that government ought to pay the bills for people who can pay their own—whether for medical care, or food, or rent, or new cars or anything else. That's why we are offering our program. We call it our federal income tax credit system. Somebody at the AMA tagged it "Medicredit." The program is designed to provide voluntary, universal health insurance that is both attractive and available to everyone who needs it. And I think we can safely say that includes everybody.

Medicredit would use medical and health insurance policies or prepayment plans—such as Blue Cross and Blue Shield — from companies already in business. They would design and offer programs that would be available to every consumer. Remember, this is not a plan limited to any special groups. The special part of it comes in the premium payments for the comprehensive health insurance coverage.

For convenience, we've divided the population into three categories:

1. Persons who are unable to pay for health insurance.

2. People who can pay part of the cost, but not all of it.

3. People who have enough money to pay for their own protection.

The measure of ability to pay is income tax liability. Please note that I did not say gross or net income. The plan is based on actual dollars that must be paid to internal revenue . . . either by withholding or direct payment. The reason for using the actual amount of tax owed is that two families with the same income might vary a great deal in their ability to provide health insurance protection for themselves. To show the workings of the program, we have arbitrarily chosen the figure of $300 tax liability for the bottom of the scale . . . and $1,300 for the top.

Our feeling is that the person or head of a family who owes less than $300 in federal income tax at the end of the year doesn't make enough to buy adequate insurance. For those people, Medicredit calls for the issuance of a certificate by the government. That certificate would be used just like cash, for insurance purposes only. It would be turned over to an insurance company, a prepayment plan or a prepaid group plan as the premium for basic, comprehensive coverage for medical and health care . . . in or out of the hospital.

For people with a tax liability between $300 and $1,300, there would be a graded scale of tax credit against the tax owed. For example, if you owed $400 income tax, the government certificate would cover 87 per cent of the premium for the health insurance. If you owed $600 tax, the credit would be 59 per cent. You would pay only the difference. The percentage paid by the government would go down as the amount of tax went up, indicating that your income was getting higher. Finally, people whose federal income tax is $1,300 or more would get no credit. They are able to buy their own insurance protection, and could take advantage of the same comprehensive programs being offered by the insurance companies and prepayment plans.

The program also calls for a National Health Insurance Board, with representation from laymen, insurors and physicians. The board would define the basic coverage to be provided in the insurance programs and would oversee the operation of the whole program. All licensed insurors in any state could compete to provide the approved programs of coverage.

I do hope I can leave one major impression with you. The medical and health care system of this nation is a good one. It has not broken down. It is not falling apart. It is not riddled with graft, nor festering with incompetence. It is made up of men and women—human beings just like you—who are proud of their skills and dedicated to using them for betterment of their fellow man. The system is, however, understaffed. It is crowded with patients, for whom it is doing the best possible job. It performs miracles now and then . . . in the spectacular cases that reach the newspapers. But mostly it just goes along its way, doing a yeoman job of taking care of millions of people who need help—removing appendices — delivering babies — setting broken bones—giving medicine for the flu—binding up wounds—curing disease. Little or none of that generates national notice. The furor comes about—and rightly so—because there are people in our huge nation . . . in its big cities, in its mountains, in its rural areas . . . whom the system does not reach as often as it should. There are people to whom it is too much of a burden to pay for the care they need. Nobody rcognizes those weaknesses more clearly than physicians. And nobody is working harder to eliminate those exceptions to an over-all picture of good care for the nation. Along with many other concerned persons, we see a situation that must be changed. It is one that can be changed. But only by correcting a great many non-medical circumstances that contribute to the problem. There is no single cure! •

PRESCRIPTION BLANKS

In this day of excessive use of drugs and drug abuse, the Colorado State Board of Pharmacy reports that phamacists are receiving forged prescriptions on bona fide blanks that have been indiscriminately left where drug abusers can steal them. To help in the all-out battle to control drug abuse problems, the Board of Pharmacy urges that physicians **please** take such steps as are necessary to insure that prescription blanks are not left unguarded. The rash of telephoned-in forged prescriptions experienced a year or so ago seems to be subsiding. The current trend is toward stealing the blanks and writing the forged prescriptions. Many of these prescriptions involve not only the dangerous drugs as defined in the law but also Class A Narcotics. Any help or cooperation you can provide in this extremely dangerous situation will be greatly appreciated by the Board of Pharmacy and all law enforcement agencies.

Colorado tick fever*

Clinical and epidemiologic features and evaluation of diagnostic methods

Michael P. Earnest,† John C. Breckinridge,‡ Robert J. Barr,§ D. Bruce Francy,¶ and Cecil S. Mollohan,£ Denver

Tick fever and its diagnosis comprise problems in the Rocky Mountain Area. Help is available.

THE CLINICAL AND epidemiologic features and the laboratory diagnosis of Colorado tick fever (CTF) have been described previously.[1,2,3,4] The illness is usually benign but is occasionally complicated by a hemorrhagic syndrome or encephalitis. These complications usually occur in children in whom the diagnosis of CTF was not initially suspected.[5]

Confirmation of CTF diagnosis is usually by demonstration of a four-fold or greater rise in complement fixing (CF) antibody. Because of the delayed CF antibody response and resultant failures in diagnosis, a direct fluorescent antibody (FA) test to identify virus antigen in clotted blood has been developed to provide early diagnosis of CTF.[6] This report presents data from a study designed to (1) re-examine the clinical and epidemiologic aspects of CTF, (2) define the incidence and character of complications of CTF, (3) evaluate the direct FA test as a diagnostic tool in CTF, and (4) compare the CF and plaque reduction neutralization test (PRNT) for the diagnosis of CTF.

*From the Arboviral Disease Section, Ecological Investigation Program, Center for Disease Control, Health Services and Mental Health Administration, U.S. Public Health Service, U.S. Department of Health, Education, and Welfare, Fort Collins, Colorado 80521; and from the Colorado Department of Health, Denver.
†Epidemic Intelligence Service (E.I.S.) Officer, Arboviral Disease Section (A.D.S.), Fort Collins.
‡E.I.S. Officer, Colorado Department of Health (C.D.H.), Denver.
§Chief, Section of Microbiology, C.D.H., Denver.
¶Chief, Biology and Control Unit, A.D.S., Fort Collins.
£Chief, Epidemiology Section, C.D.H., Denver.

Methods

All suspect cases of CTF reported in 1969 from Boulder and Larimer Counties, Colorado, were interviewed as soon as possible following the onset of illness. Sources of reports were cooperating local physicians and clinical pathology laboratories. Questions were asked concerning time and location of tick exposure, onset of illness, clinical features and complications. Where possible, the patients were examined by one of us. Eight months after illness, patients were questioned concerning duration of convalescence. Diagnostic specimens included acute blood clot, acute and convalescent sera and, when possible, additional blood clot and later convalescent sera. Blood clots were subjected to direct FA testing as described by Emmons and Lennette.[6] Standard CF testing and PRNT in Vero cell cultures were performed on paired sera. A suspect case was considered confirmed if any FA test was positive or if CF or neutralizing antibodies showed a significant rise.#

Results and Discussions

Forty-five CTF cases were confirmed. In general, clinical and epidemiologic data confirmed prior reports. The syndrome included fever (98%), headache (35%), myalgia (82%), and lethargy (67%), with nausea, vomiting and retro-orbital pain less frequent. A few developed rash, adenopathy or hepatosplenomegaly. Only 20 patients experienced the frequently described relapse of symptoms two to three days after the end of the initial symptomatic period. The

#This is defined as either (1) a four-fold rise in antibody by standard CF or serum dilution PRNT or (2) a change in neutralizing index from less than 0.50 to greater than 0.90 by virus dilution PRNT.

median incubation period was four days, the range one to nine days. Thirty-nine patients had found a tick on themselves prior to their illness; of these, 32 found attached ticks. The preponderance of young adult men probably reflects their greater frequency of outdoor activity (Table 1).

TABLE 1
AGE AND SEX DISTRIBUTION OF 45 CASES OF CTF
Boulder and Larimer Counties, Colorado—1969

AGE	MALE	FEMALE
0-4	0	0
5-9	1	0
10-14	4	2
15-19	5	2
20-29	12	4
30-39	2	1
40-49	5	1
50-59	2	1
>60	3	0
TOTALS	34	11

Cases occurred each week from early July with the exception of the week of June 15. The dates of onset (Fig. 1) correspond to the season of tick activity.

Sixteen of 30 patients questioned eight months after their illness reported a prolonged convalescence. This has been described by other authors but not documented. Convalescent symptoms included lethargy, weakness, anorexia and "dizziness," lasting more than two weeks beyond the acute phase and were unrelated to the duration or severity of the acute illness.

No major complications were observed. However, complications described by others occurred predominantly in children,[5] whereas in our study group only one patient was less than ten years old (Table 1). Perhaps cases

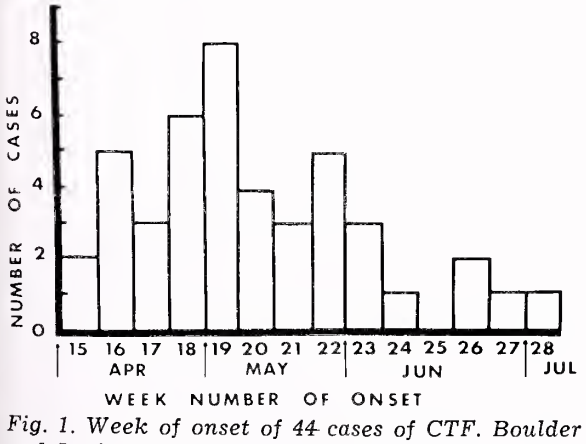


Fig. 1. Week of onset of 44 cases of CTF. Boulder and Larimer Counties, Colorado—1969.

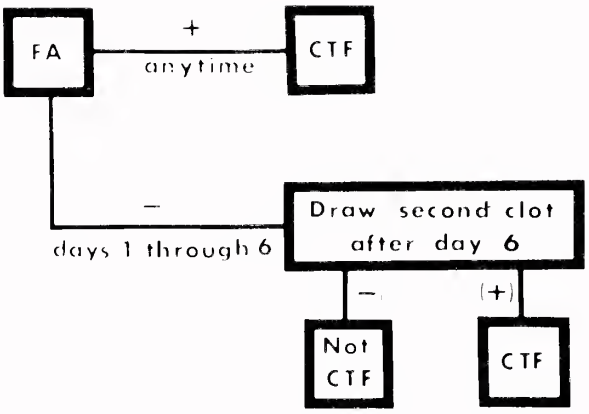


Fig. 2. Scheme for interpretation of FA test in diagnosis of CTF.

were missed because CTF is not widely recognized as a cause of CNS disease or hemorrhagic syndromes and diagnostic studies are often not obtained.

Fluorescent antibody tests were done at least once on 42 patients. Forty of these patients had at least one positive test. Twenty-eight patients had both FA and adequate serologic testing. Adequate serologic testing is defined as either (1) paired sera positive by CF test or (2) negative by CF but also subjected to PRNT (in accord with Emmons' recommendations that inconclusive routine CF tests should be followed by a test for neutralizing antibody.[7] Of these 28, 25 were both FA positive and seropositive. One was FA positive and seronegative. This one apparent false positive FA had no convalescent serum later than the 16th day of illness while PRNT, and especially CF antibodies, often appear considerably later.[7] Two patients were FA negative but seropositive. These patients had only one FA test done, and that on a clot from the first day of illness. These results are summarized in Table 2. A comparison of the CF and PRNT tests confirmed Emmons' prior observations.[7] Of 18 FA positive patients on whose paired sera both CF and PRNT were done, 16 were PRNT positive while only ten were CF positive.

TABLE 2
COMPARISON OF FA AND SEROLOGIC RESULTS ON 28 PATIENTS WITH CTF

	FA Positive	FA Negative	
Sero Positive	25	2	27
Sero Negative	1	0	1
TOTALS	26	2	28

The time of obtaining the specimen for the FA test was important. Of 27 FA specimens taken in the first six days of illness from subsequently confirmed cases, 14 were FA negative. Second clots obtained after day six from 12 of these 14 were FA positive. The two negative specimens not retested were from the apparent false negative FA patient described above. All 28 specimens drawn after day six, including the 12 retests, were FA positive. Five of these were obtained four to seven weeks after onset of illness and a sixth after eight months.

An early positive FA test is reliable; an early negative must be repeated (more than 50 per cent false negatives). Late FA tests, either positive or negative, are reliable, and positive tests may persist for several months. A scheme for interpretation of FA tests on suspect CTF cases is summarized in Fig. 2.

Summary

These data support the value of the FA test in the diagnosis of CTF. However, more experience is needed in these and other laboratories to further verify its sensitivity and reliability. Also, CTF should be looked for more often in cases of encephalitis or bleeding syndromes, especially in children. •

ACKNOWLEDGMENTS

The CF and FA tests were performed in the laboratories of the Colorado Department of Health. The PRNT testing was done in the laboratory of the Arboviral Disease Section, Ecological Investigations Program, U.S. Public Health Service, Fort Collins, Colorado.

REFERENCES

[1] Topping, N. H., Cullyford, J. S., and Davis, G. E.: Colorado Tick Fever. Public Health Reports, 55:2224-2237, 1940.

[2] Florio, L., and Stewart, M. O.: Colorado Tick Fever. American Journal of Public Health, 37:293-297, 1947.

[3] Florio, L., and Miller, M. S.: Epidemiology of Colorado Tick Fever. American Journal of Public Health, 38:211-213, 1948.

[4] Eklund, C. M., Kohls, G. M., Jellison, W. L., Burgdorfer, W., Kennedy, R. C., and Thomas, L.: The clinical and ecological aspects of Colorado tick fever. In Proceedings of the 6th International Congresses on Tropical Medicine and Malaria, Lisbon, 5-13, September 1958.

[5] Eklund, C. M., Kennedy, R. C., and Casey, M.: Colorado tick fever, Rocky Mountain Medical Journal, 58:21-25, 1961.

[6] Emmons, R. W., and Lennette, E. H.: Immuno-fluorescent staining in the laboratory diagnosis of Colorado tick fever. The Journal of Laboratory and Clinical Medicine 68:923-929, 1966.

[7] Emmons, R. W., Donduo, D. V., Devlin, V., and Lennette, E. H.: Serologic diagnosis of Colorado tick fever. American Journal of Tropical Medicine and Hygiene, 18:796-802, 1969.

PHYSICIAN'S ASSISTANTS*

Six "physician's assistants" have been hired at three Veterans Administration hospitals to relieve doctors of routine medical tasks.

Veterans' Administrator Donald E. Johnson said these six are the first to be employed, but VA will hire more for hospital and clinic work throughout the U. S. Johnson said the new health care workers can be hired under new job classifications developed by Civil Service.

A "physician's assistant" (PA) performs diagnostic and therapeutic tasks under the supervision of a medical doctor, Johnson pointed out. His duties can include taking medical histories, performing examinations, applying and removing casts, suturing minor lacerations and other duties traditionally performed by the physician.

The PA's primary function, Johnson stressed, is to allow the physician to make more efficient use of his time.

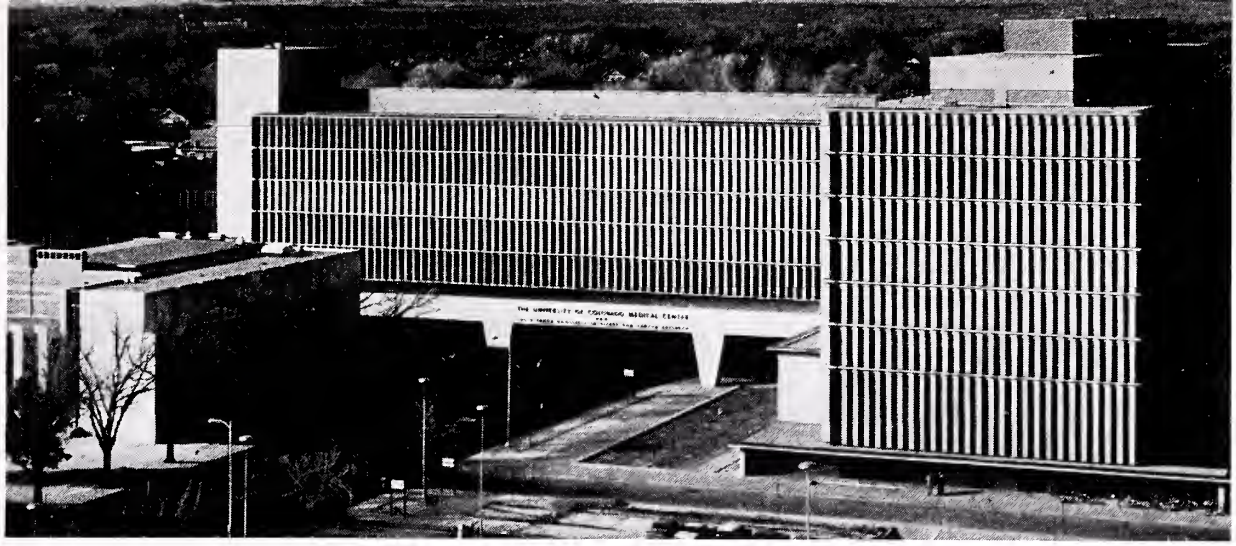
Employment information has been issued to VA's 166 hospitals and clinics. Candidates for entry-level positions as PA's, GS-7 ($8,098 annually), must have completed specialized 12-month study.

They must also have a medical background, such as would be acquired by three years of nursing experience, or as an independent-duty military medical corpsman.

The VA chief anticipates that PA's will be utilized in all VA facilities and detailed guidelines are being developed.

This year VA installations are participating in the training of more than 40,000 health personnel, including physicians, dentists, nurses, the allied professionals, technicians and aides. By 1975 this number is expected to reach 90,000.

*From the VA Information Service, Washington, D.C. 20420.



Tumor Conference from University of Colorado Medical Center

Edited by Erick R. Ratzer, M.D.

Chemodectomas of the ear

PARTICIPANTS: **Richard L. Cundy, MD, Chief Resident, Otolaryngology**
Gerald M. English, MD, Assistant Professor of Surgery, Otolaryngology
Bing Johnson, MD, Assistant Professor of Radiation Therapy
Richard Mulligan, MD, Professor of Pathology
Robert C. Newell, MD, Associate Clinical Professor of Surgery, Otolaryngology
Erick R. Ratzer, MD, Assistant Clinical Professor of Surgery
M. Weston Reynolds, MD, Assistant Clinical Professor, Radiation Therapy

Dr. English: We have selected two patients with chemodectomas of the ear for presentation at this conference. These patients exhibit the two extremes that these tumors may show when they occur within the temporal bone. Dr. Cundy will present the patients' clinical records.

Presentation

Dr. Cundy: The first patient is a 75-year-old woman who five years ago suddenly developed vertigo and bilateral roaring tinnitus — more prominent in the right ear. She also noted bilateral hearing loss, also more severe on the right. The diagnosis was Meniere's

Fig. 1. Frontal tomogram of the right temporal bone in Case 1. The external auditory canal (large arrow) is normal. The middle ear space (small arrow) is well aerated, but a soft tissue mass (T) is outlined in the hypotympanic region (dotted line). This tumor was biopsied and proven to be a chemodectoma.

Disease and she received symptomatic treatment with good results. During the past five years she has had several recurrences of these problems, all treated reasonably well. She was referred to Colorado General Hospital for evaluation after her most recent episode of tinnitus and vertigo.

She also has a history of congestive heart failure and symptoms compatible with basilar artery insufficiency.

Her audiogram indicates bilateral neurosensory loss with superimposed conductive defect on the right. Speech discrimination was decreased on both sides and she did not have recruitment. This latter finding is against a diagnosis of Meniere's Disease.

Examination revealed a small bluish mass that was visible through the lower half of the tympanic membrane. The discoloration of the mass blanched with pressure on the tympanic membrane — (Brown's Sign) during pneumatic otoscope examination. Temporal bone tomograms are shown in Fig. 1. The lesion was biopsied after raising a tympano-meatal flap and the histopathologic diagnosis was chemodectoma. The patient refused further surgery and was treated with irradiation. After 2500 rads of therapy the tinnitus had subsided and the pressure decreased in her ear. She received a total dose of 5000 rads and her last examination revealed a marked reduction in the size of the tumor mass.

Dr. Mulligan: Do you think this tumor came from the tympanic nerve or the glomus jugulare?

Dr. Cundy: The tympanic plexus.

The second patient is a 49-year-old woman who developed tinnitus in her right ear and mild dysphagia twelve years ago. There was also some decrease in hearing on the right and some numbness and weakness in her right hand. The diagnosis at that time was multiple sclerosis and no further diagnostic studies were made.

These symptoms slowly progressed and she developed atrophy of the right half of her tongue, increased hearing loss on the right, hoarseness and an enlarging mass beneath her right ear. She was recently referred to Colorado General Hospital for evaluation and treatment.

Examination revealed a 5 x 5 cm mass in the neck beneath the right pinna. There was a palpable thrill and bruit in this mass. The middle ear was filled with a polypoid red mass. The right vocal cord was paretic and the right half of the tongue was atrophied and deviated to the right. There was a loss of function of cranial nurves VII, IX, X, XI and XII on the right. Temporal bone tomograms and Stenvers view of the mastoid revealed extensive bone destruction. The hypotympanic area, otic capsule and petrous apex were involved by this process. These x-rays are shown in Figs. 2 and 3. Figures 4 and 5 show the carotid angiograms. This study reveals a large tumor mass within the cervical area and temporal bone. Large branches of the external carotid artery entered this mass and there was early filling of the internal jugular vein. A biopsy revealed this tumor to be a chemodectoma. It appeared to arise from the glomus jugulare. Treatment with irradiation has just been started, and there has been little if any clinical evidence of tumor regression.

Dr. Mulligan: For many years, the term, "carotid body tumor" was used to designate the neoplasm of the paraganglionic cells of the parasympathetic nervous system, until tumors of this type were also described in relation to the tympanic nerve, the bulb of the internal jugular vein, the ganglion nodosum of the vagus nerve, and the aortic arch,

Fig. 2. Right Stenver's Mastoid x-ray view in Case 2. Extensive erosion of the petrous apex is outlined with arrows. The posterior petrous ridge (PR) is normal. The internal auditory canal (IAC) is particularly destroyed (large arrow) in its medial inferior portion. The superior semicircular canal (SSC) appears normal as does the temporomandibular joint (TMJ).

Fig. 3. Frontal Tomogram of the (R) temporal bone in Case 2. The middle ear (ME) is apaque and appears to be filled soft tissue. The external ear canal (large arrow) is indistinct and cloudy. On examination the tumor was extending through the tympanic membrane into the external canal. The hypotympanum and petrous apex are extensively eroded (dashed line) with tumor.

most in relation to the glossopharyngeal and vagus nerves. Because the cells of true neoplasms of "carotid body type" do not contain granules positive with oxidative agents such as chromates, the name, "non-chromaffin paraganglioma" was proposed to distinguish these neoplasms from pheochromocytoma or paraganglioma, a tumor of the paraganglionic cells of the sympathetic nervous system, the cells of which reveal a positive reaction for norepinephrine or pressor amine, their main secretory product. To avoid these difficulties in nomenclature and to propose a term with homogeneous language roots meaning a tumor of chemoceptor cells (no matter where located), which make up the "non-chromaffin paraganglioma," in 1950 I coined the term, chemodectoma (chemia — infusion: dechesthai — to receive: oma — tumor) to designate these neoplasms. This followed a discussion with Dr. Rafaele Lattes, a contributor of important articles on this tumor and with Dr. Karl Neubuerger, an outstanding neuropathologist and Greek linguist. An anonymous editorial in J.A.M.A. a few years ago was written in a kindly vein in recognition of the suitability of the word, chemodectoma.

This diagram from LeCompte's fascicle on tumors of the chemoreceptor system depicts the distribution of this tumor in man.

The most common site of origin of these tumors in man is the carotid body, while the

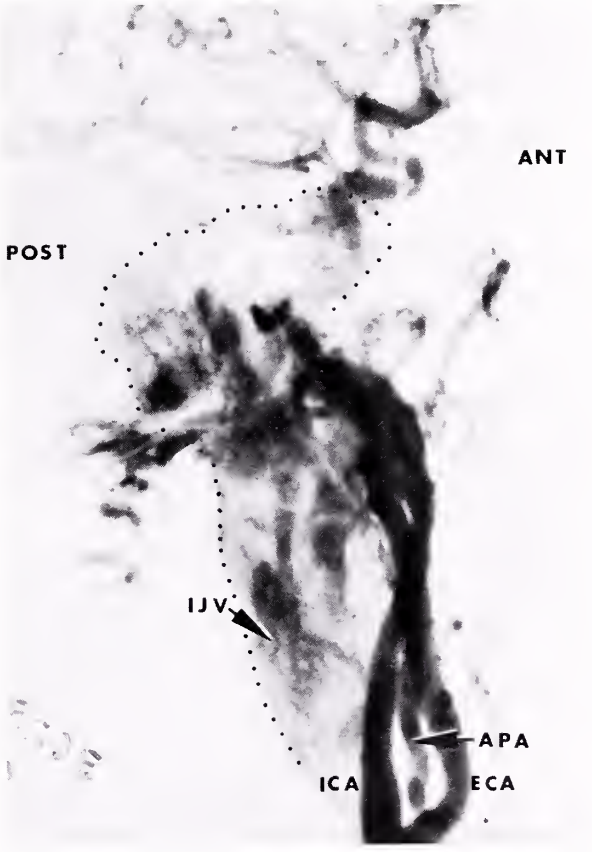


Fig. 4. Right lateral subtraction view of the arterial phase of common cartoid arteriography 1.5 sec. following the start of injection. (Case 2) The internal carotid artery (ICA) and external carotid artery (ECA) are clearly outlined. A large ascending pharyngeal artery (APA) is clearly visible. A large tumor mass extending into the temporal bone and internal juglar vein (IVJ) is outlined (dots). The intraluminal (IVJ) portion of the tumor extends some distance into the neck.

most common site in the dog is the aortic arch. This tumor is intrinsically benign and rarely metastasizes, no matter where it occurs. However, when it is located in the petrous portion of the temporal bone as in the second patient, successful diagnosis and management is very difficult.

The normal function of these cells is to translate chemical influences in the blood into nervous impulses afferent to the respiratory center of the central nervous system.

During the past several years, some authors have claimed in rare cases that the cells of chemodectoma secrete pressor amines such as norepinephrine. I cannot subscribe to this view. Electron microscopic studies indicate that the cells of chemodectoma contain rich endoplasmic reticulum studded with ribosomes, which I hypothesize may indicate synthesis of an acetylcholine-protein complex. This needs to be substantiated. These authors may have been dealing with neoplasms containing cells of paraganglionic type of *both* parasympathetic and sympathetic origin. An observation not as appreciated as should be is that a person with a neurectodermal tumor of one type may develop one or more other types of neurectodermal tumors.

Dr. English: Dr. Mulligan, is it difficult to make a histologic diagnosis of chemodectoma? What other conditions must be considered in a differential diagnosis?

Dr. Mulligan: The diagnosis is difficult if the biopsy is small and this is often the situation where a lot of bleeding occurs when securing the tissue. We also have trouble if the specimen is badly distorted secondary to maceration.

Hemangioendothelioma is the other tumor involved in the differential diagnosis. There are so many blood vessels in a chemodectoma you have to be careful you don't concentrate on them and fail to recognize the tumor cells.

Dr. English: I was able to locate thirty-five cases of chemodectoma involving the ear treated at Colorado General Hospital. Twenty-three of these have been treated since 1960. All except the second case presented today have completed their therapy.

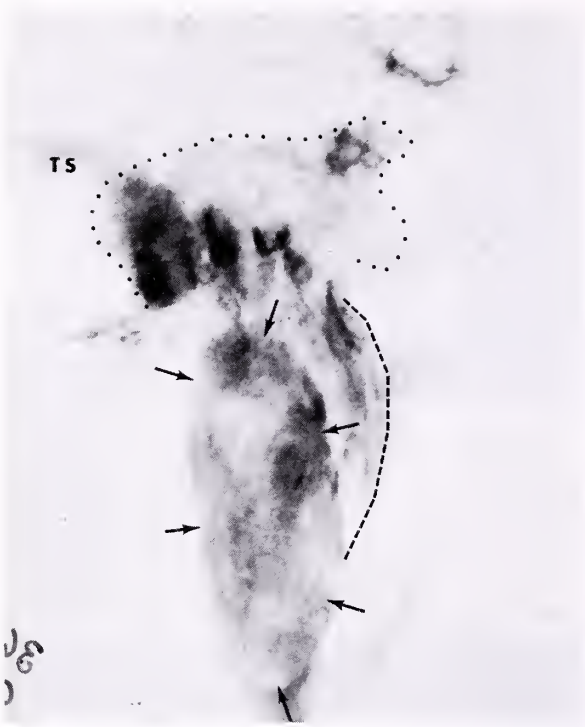


Fig. 5. Right lateral subtraction view of the arterial phase of a common carotid arteriogram 2.5 sec. after the start of injection Case 2. The temporal bone tumor is outlined with dots. The extraluminal neck extension of the tumor is outlined with the dashed line. The internal jugular vein contains a large tumor mass within its lumen (arrows). The transverse sinus (TS) shows early filling with contrast material.

Dr. Johnson, would you tell us about your decision to use radiation therapy in this particular patient?

Dr. Johnson: It is well known chemodectomas are extremely vascular. It is also well known that other vascular tumors, i.e. hemangiomas, respond well to irradiation and because of this irradiation was tried in chemodectomas a number of years ago.

In the earlier years the dosages used were relatively low, but it was still possible to control the tumor in a significant number of people. We now give a dose of 5,000 rads and achieve much better results.

In 1962, the following was reported to be true with regard to radiation therapy results with chemodectoma of the jugular bulb. If tomography revealed no bone destruction, a control rate of 75 per cent could be achieved. If bone destruction was present this fell to 55 per cent.

Dr. English: Since 1960, we have had 23 chemodectomas involving the ear. Fourteen of these tumors occurred in women and nine in men. Conductive hearing loss was present in 85 per cent of the patients and 35 per cent had a neurosensory hearing loss. Four patients had other cranial nerve defects and in two others cranial nerve defects occurred after treatment. Bleeding from the ear canal occurred in six patients. Only one patient was completely asymptomatic.

In three of the 23 patients the tumor extended beyond the temporal bone and in every case the extension involved the carotid artery or jugular vein.

Treatment has consisted of surgery and/or irradiation. Surgery was used in 65 per cent of the patients, irradiation in 25 per cent and both methods of therapy in 10 per cent of the patients.

There were 15 patients treated with surgery and 12 of these are now free of disease. One of the three failures had an unresectable tumor and two have had recurrence at the primary site. Six patients by irradiation, and four are now free of tumor. Two patients have had locally recurring tumor. The failure rate seems to be a little greater in the group treated with irradiation.

Dr. Reynolds: Dr. Mulligan, do you think there is a difference in biological behavior of some of these tumors as compared to the rest? There is about a 25 per cent failure rate in every reported series regardless of the primary treatment employed.

Dr. Mulligan: No, I'm afraid you couldn't tell by looking at a given tumor what it is going to do. As a matter of fact, those cases that do metastasize don't look bad at all. They are comparable to a carcinoid tumor: they look mighty benign, but some of them are lethal. There probably is a difference in biological activity between chemodectomas, but I don't know any way to determine that by looking at the cells.

Dr. Ratzer: How is it decided what tumors are treated surgically and which ones are irradiated?

Dr. English: The usual chemodectoma occurring in the ear is a small tumor fairly well circumscribed and located on the promontory of the middle ear. These are usually easy to surgically excise through the ear canal raising a tympanomeatal flap.

The chemodectoma arising in the hypotympanic area is a different matter. These often extend into bone and secondarily involve the jugular vein, carotid artery and various cranial nerves. Special studies are necessary in these patients to determine their resectability. Carotid angiography, temporal bone tomography and jugular venography are the most important studies. Even these diagnostic aids may be equivocal, and the decision to operate made on a consideration of all the data available.

The surgical approach to a tumor in the ear can be through the ear canal or mastoid, or a combination of appraches depending on the size and location of the tumor. Of the 15 patients treated surgically 10 were operated upon through the ear canal and five through the mastoid or combination approach.

Dr. Johnson: The patients with this tumor want to know if they will get rid of their vertigo. You can't promise they will, but the vertigo frequently improves. The deafness is rarely improved following treatment.

Dr. Ratzer: What in your opinion will be the clinical course of the second patient presented today?

Dr. Johnson: I feel reasonably confident radiation therapy will control her tumor for three to four years and feel there is more than a good possibility of controlling it longer.

Dr. Reynolds: That's been my experience also. I can't recall irradiating a chemodectoma that didn't respond. However, from three to 15 years after therapy the patients usually develop reactivation of the tumor or develop another one.

Dr. Ratzer: When reactivation occurs, is the clinical situation worse than when the patient was originally treated?

Dr. Johnson: As a rule, yes, because more destruction has to occur before the reactivation is apparent.

Dr. English: I have asked Dr. Robert Newell to comment on this subject and these patients. He has been very interested in the biochemistry and biologic behavior of these tumors.

Dr. Newell: I agree with Dr. Mulligan that these tumors are chemoreceptor tissue. Each of us has 2.84 pieces of chemoreceptor tissue within our temporal bone — the figure is based on 88 temporal bone examinations. In very few people do tumors arise from this tissue.

Chemoreceptor tissue similar to that found in the temporal bone has been found almost everywhere in the body — intra-abdominally, within the lung, the orbit, within the mandible and even within the larynx. It appears to have an important function in regulating blood flow to the anatomical areas, and perhaps the importance of the brain, eye, and ear are why more of this tissue is found in the head and neck area.

In addition, there is electron microscopy evidence that these cells contain secretory granules. These dark argyrophilic granules are also present in the adrenal and pancreatic cells. The isolation of these secretions, if they exist, has not been accomplished except in a few tumors; however, the granules themselves are normally equated with catechol amine secretion. There have been chemodectomas reported that were associated with increased catechol amine and norepenephrine levels. One patient had two negative abdominal explorations because the physicians in charge were positive they were dealing with a pheochromocytoma. Subsequently, a large jugular bulb chemodectoma was found.

We presume these tumors can secrete norepinephrine, but there have been reports of two which may have been Dopamine secretors. Perhaps they are all Dopamine secretors, but we don't pick this up because the material is metabolized within the tumor before any gets into the blood stream.

There is well established material substantiating these tumors as familial and multicentric in origin. Therefore, the families of these patients should be queried for any symptoms of the tumor, and the patients should be carefully examined for a second or third one.

Dr. Ratzer: In the second patient presented today, how are we going to know if the radiation therapy is helping her?

Dr. Newell: Follow-up arteriograms. In addition, if her symptoms abate that is a good indication she is better, particularly if her cranial nerve function returns.

However, in my experience, there have been few radiation therapists that would treat these tumors, except in the past few years. One confusing factor is the known presence of chemodectomas for up to 40 years without symptoms and without any treatment. It makes it hard to know at times the effectiveness of treatment. These are very slow growing tumors in most patients.

Dr. Ratzer: Here is the specific problem in the second patient. We accept the fact radiation therapy will arrest the tumors, but in time it will reactivate and grow. The radiation therapists are unable to pinpoint the time this will occur, so we should have a

PUBLICATION PRINTING . . .

NEWSPAPERS • MAGAZINES

ANNUALS • QUARTERLIES

BOOKLETS • BROCHURES

REPORTS • ROSTERS • PROGRAMS

HANDBOOKS • CATALOGUES

EDITORIAL ASSISTANCE • BINDING

ART DEPARTMENT • MAILING

Publishers Press, Inc.
/Monitor Publications

2177 W. 7th DENVER 892-0166

follow-up program set up looking for very specific things to tip us off that the tumor is now progressing. At that she should be re-evaluated for surgical resection because it will be her only chance for salvage. Admittedly, the operation would be at least temporal bone resection with all of its attendant risks, but at that time no alternative is available.

We cannot recommend the surgery when arrests of chemodectomas by irradiation are reported to last 15 years in a few cases. So we must determine how best to follow her to pick up regrowth as soon as it occurs.

Dr. Johnson: Cerebral arteriograms would be helpful, as would plain skull films looking for increased bone destruction. In the second patient, measurement of the visible, external portion of the tumor would also help. I would advise following her every three months to check on her progress.

However, there are some who will not agree with this. I heard this paper at the Radiological Society of North America last month: "Response of Glomus Jugulare Tumors to Radiotherapy by Clinical or Angiographic Examination" — Maruyama, Yost et al.

Local response of tumor to radiation is excellent and long term survival following treatment is observed in a large percentage of patients. Several cases were selected for serial angiographic evaluation and these examinations were carried out sequentially for several years. Although tumor response was good, the angiographic examination did not reveal striking changes in the angiographically visible vessels. These clinical and angiographic studies showed poor correlation in assessing response. The angiogram should not be used as a monitor for additional therapeutic consideration. •

RESEARCH AWARDS FOR SCIENTIFIC RESEARCH IN ORTHOPAEDICS

The American Academy of Orthopaedic Surgeons is soliciting entries for its 1972 annual Kappa Delta research awards for outstanding scientific research in orthopaedics. The awards of $1,500 each will be given to authors of the three investigative papers selected for presentation at the Academy Annual Meeting January 29-February 3, 1972, in Washington, D. C.

Deadline for submission of manuscripts is August 15, 1971, and those eligible to compete are accredited physicians, teachers, research workers, and medical students who are citizens of the United States or its possessions.

Awards will be made in these three categories—basic research relating to the musculoskeletal system, clinical research in orthopaedic surgery, and problems related to trauma of the musculoskeletal system.

For complete details contact Patrick G. Laing, M.D., Chairman, Committee on Research Awards, American Academy of Orthopaedic Surgeons, 211 North Whitfield Street, Pittsburgh, Pennsylvania 15206.

MATERNAL MORTALITY

The following case has been reviewed by the Colorado Maternal Mortality Committee* and selected for publication because of its educational value.

Fulminating Toxemia

TOXEMIA OF PREGNANCY is the primary cardiovascular disease found in young women, yet, its therapy is empiric. We do what experience has proved works. Immediate hospitalization, careful diet, sedation and diuretics have helped stabilize the mortality rate.[1] However, we still lose 2 to 10 per cent of these patients.[2] If this rate is to be improved, it is crucial that all physicians who deal with women of childbearing age be thoroughly familiar with the symptoms, classification and diagnosis of the toxemias. Perhaps if we treat our preeclamptics more vigorously we will see fewer examples of the following case.

CASE REPORT

A 22-year-old gravida three, para two was admitted at thirty-eight weeks gestation complaining of severe headache and epigastric pain. Her blood pressure was 200/120 and she was having continuous uterine contractions. Her urine showed 2 plus albumin and hemoglobin was 12.8 gm. The prenatal course was uncomplicated except for a 1 plus albumin the previous week. The patient was given a prep and enema. Medications included Demerol, Sparine, Darvon and Compazine. The nurses's notes indicated that the uterine contractions lasted over forty minutes, that there was too much bloody show and moderately heavy bleeding. The patient became comatose ten hours after admission and a convulsion was noted at this time. The patient was delivered of a male infant thirty minutes later with an Apgar of 1-1. The procedure was a breach extraction under Penthrane anesthesia. She was oliguric after delivery and was catheterized three hours after delivery. A small amount of concentrated urine was obtained. The patient's movements were clonic; breathing, weak and irregular; pulse, 80. Respirations ceased sixteen hours after admission. Attempts were made at resuscitation but these failed and she was pronounced dead.

The infant died four hours after the mother of congenital atelectasis.

Autopsy Report: No autopsy was performed on the infant. The findings on the mother are as follows: Cerebral hemorrhage, fulminating toxemia of pregnancy, and hepato-toxic hemorrhage. •

REFERENCES

[1] Zuspan, Frederick P.: Treatment of severe preeclampsia ecalampsia. Clinical Obstetrics and Gynecology 9:960, Dec. 1966.

[2] Ibid.

*The following physicians have been appointed to serve on the Maternal Mortality Committee, a subcommittee under Maternal and Child Health: Horace E. Thompson, Chairman, E. N. Akers, Maxwell A. Abelman, L. Joseph Butterfield, Warren E. Cooper, Gerald W. Del Junco, Lawrence W. Roessing, all of Denver; John H. Darst, Greeley; Harold L. Dyer, Colorado Springs; Richard R. Hansen, Fort Collins; Ronald E. Harrington, Boulder; James R. Patterson, Englewood; Louis C. Wollenweber Jr., Lakewood.

Ef-
fic-
iency

Dicarbosil®
ANTACID

Your ulcer patients and others will confirm it. Specify DICARBOSIL 144's—144 tablets in 12 rolls.

ARCH LABORATORIES
319 South Fourth Street, St. Louis, Missouri 63102

CALORIES / 7 oz. Serving*			
Beef Broth	22	Vegetable	68
Consommé	29	Tomato	69
Chicken with Rice	43	Cream of Asparagus	70
Chicken Gumbo	48	Cream of Chicken	76
Chicken Noodle	54	Cream of Mushroom	115
Cream of Potato	58	Green Pea	116
Chicken Vegetable	60	Cream of Shrimp (Frozen)	132
Vegetable Beef	66	Bean with Bacon	133

In planning high or low calorie diets, Campbell's more than 50 different soups offer you a wide choice. And, most of Campbell's Soups contain a wide variety of ingredients that can serve as supplementary sources of many essential nutrients.

* From "Nutritive Composition of Campbell's Products" which gives values of important nutritive constituents of all Campbell's Products. For your copy, write to Campbell Soup Company, Dept.35, Camden, New Jersey 08101.

There's a soup for almost every patient and diet ...for every meal and, it's made by *Campbell*

Colorado Winter Clinics

Colorado Medical Society

February 26-28, 1971

Dawson Auditorium, Presbyterian Hospital

Denver, Colorado

Friday, February 26

8:00 a.m.—ORIENTATION COURSE, DENVER MEDICAL SOCIETY

10:01 a.m.—HOUSE OF DELEGATES, FIRST MEETING

1:30 p.m.—REFERENCE COMMITTEE MEETINGS

Saturday, February 27

8:00 a.m.—WELCOME

Marvin Johnson, M.D., President
Colorado Medical Society

POSTGRADUATE MEDICAL EDUCATION

Robert Brittain, M.D., Moderator

8:10 a.m.—FOR MEN IN PRACTICE

C. Wesley Eisele, M.D.

8:30 a.m.—FOR RESIDENTS: NEW FAMILY PRACTICE RESIDENCY

Herbert R. Brettell, M.D.

8:50 a.m.—PRIMARY PHYSICIAN ON THE NATIONAL SCENE

R. Neil Chisholm, M.D.

9:10 a.m.—IS THE INTERNSHIP DEFUNCT?

Ward Darley, M.D.

9:30 a.m.—Questions and Answers and Further Discussion

CLINICS—NEW TECHNIQUES AND PATIENTS

William R. Waddell, M.D., Moderator

10:00 a.m.—IMPORTANCE OF GASTRIC PHOTOGRAPHY AND CYTOLOGY: A PATIENT WITH LYMPHOSARCOMA

Drs. James Smith and Erick Ratzer

10:20 a.m.—LOCALIZATION OF PARATHYROID TUMORS BY ANGIOGRAPHY

Drs. Janet Schemmel, John Taubman and James N. Wolff

10:40 a.m.—ACUTE SALMONELLA INFECTIONS

H. Dale Thomas, M.D., LaJara, Colorado

11:00 a.m.—CLOTTING PROBLEMS IN NEW BABIES

John Burrington, M.D.

11:20 a.m.—MANAGEMENT OF CONTAMINATED WOUNDS. GAS GANGRENE TREATED WITH AMPUTATION, HYPERBARIC OXYGEN AND ANTIBIOTICS WITH SURVIVAL

Drs. Paul Brown, Dixie Baines, and Paul Glatleider

AFTERNOON PROGRAM

Seminar on Malpractice Insurance
Seminar on Colorado Foundation for Medical Care

Sunday, February 28

9:30 a.m.—HOUSE OF DELEGATES, SECOND MEETING

NEVADA

Abstract of Minutes, House of Delegates Nevada State Medical Association 67th Annual Meeting—Stateline, Nevada October 21-24, 1970

Two meetings of the House of Delegates were held at the 67th Annual Meeting, with President V. A. Salvadorini presiding as Speaker.

FIRST MEETING
Wednesday, October 21, 1970

The House was called to order at 1:45 p.m. in the Alpine Room, Sahara Tahoe Hotel, Stateline, Nevada. The invocation was given by John W. Callister, M.D.

After roll call, with a quorum in attendance, Dr. Salvadorini introduced the President-elect of the Auxiliary to the American Medical Association, Mrs. G. Prentiss Lee; John H. Carr, M.D., Nevada State Health Officer; and Colonel Robert Holzworth, Professional Director, OCHAMPUS. Dr. Salvadorini then called on Mrs. Olin C. Moulton, President, Auxiliary to Nevada State Medical Association, who presented her annual report to the House.

Reports of officers and committees and resolutions were referred to the appropriate reference committees.

President Salvadorini presented his report and then adjourned the House until 9:00 a.m., Saturday, October 24, 1970.

SECOND MEETING
Saturday, October 24, 1970

Speaker Salvadorini called the second session of the House of Delegates to order at 9:00 a.m.

After roll call, with a quorum in attendance, Dr. Salvadorini called for reports of Reference Committees.

The House approved a resolution, "That insurance carriers recognize that treatment of emotional problems should be partially covered while patients are in convalescent hospitals which have adequate psychiatric care under the guidance of a trained physician."; and the committee's recommendation, "— that adequate certification for psychologic counseling be implemented and that no uncertified individual be allowed to advertise or list himself in the phone book. This recommendation should be implemented by the State Legislature through the NSMA Legislative Committee."

The House approved a recommendation of the Mental Health Council that the State Legislature be requested to forward all bills pertaining to mental health problems to the Mental Health Council of the NSMA for perusal and suggestions prior to the Legislature making such bills law.

Approved a resolution, "— that the House of Delegates support the position of the Mental Health Council in its objection to the proposed licensure of psychiatric units in Nevada hospitals, and that this resolution be made known to the State Board of Health."

Approved a resolution urging control of drug abuse by enforcement of present controls on all stimulants, euphoriants and hypnotics, as well as narcotics, and that this resolution be implemented through both the Legislative Committee and the Public Relations Committee, and further that the House of Delegates direct the Legislative Committee to pursue legislation permitting the voluntary registration of narcotic addicts in the State of Nevada, and to study feasibility and desirability of establishing methadone clinics in the State of Nevada.

Approved advising the Woman's Auxiliary, the State Nursing Association and the State Hospital Association of dates and places of future meetings.

The reference committee recommendation to discontinue the following committees was approved: Crippled Children's Advisory, Blood Bank, Nurse Liaison, Aging, Disaster and Civilian Defense and Infant and Child Care. The responisbilities of these committees will be assigned to other committees.

The House approved that the NSMA adopt the American Medical Association position on abortions, with the added definition of an accredited hospital, to read as follows:

"WHEREAS, Abortion, like any other medical procedure, should not be performed when contrary to the best interests of the patient, since good medical practice requires due consideration for the patient's welfare and not mere acquiescence to the patient's demands; and

"WHEREAS, The standards of sound clinical judgment, which together with informed patient consent should be determinative according to the merits of each individual case; therefore be it

"RESOLVED, That abortion is a medical procedure and should be performed only by a duly licensed physician and surgeon in a JCAH accredited, and a Nevada Hospital Association member hospital acting only in conformance with standards of good medical practice, and after consultation with two other physicians chosen because of their professional competence, and with the Medical Practice Act of his state; and be it further

"RESOLVED, That no physician or other professional personnel shall be compelled to perform any act which violates his good medical judgment. Neither physician, hospital nor hospital personnel shall be required to perform any act violative of personally held moral principles. In these circumstances, good medical practice requires only that the physician or other professional personnel withdraw from the case as long as the withdrawal is consistent with good medical practice."

Approved the following resolution:

"RESOLVED, That the Nevada State Medical Association approve amending the Nevada statutes on abortions adhering to the principles expressed by the AMA and NSMA resolution."

Approved the following resolution and recommended it be referred to the appropriate standing committee for study, the committee to be instructed to particularly review the legality of the requirement for posting a minimum bond:

"WHEREAS, Presently the cost of instituting a capricious professional liability action against a physician is small and of little consequence; and

"WHEREAS, The possibility of loss to the physician through adverse publicity, loss of practice time, and particularly the burden of marked increase in premiums for professional liability insurance is great; therefore be it

"RESOLVED, That a $500.00 minimum bond be posted by the plaintiff, at the initiation of action, to be held until a decision is reached; and be it further

"RESOLVED, That all court costs, legal fees, registration fees, and physician insurance carrier fees be paid by the plaintiff should he fail to prove his case."

Approved this resolution:

"WHEREAS, The Nevada Statute of Limitations is for seven years; and

"WHEREAS, Other states, such as California, have recently passed new laws limiting the statutes of limitation to four years; be it

"RESOLVED, That the Nevada State Medical Association instruct the Executive Committee to seek legal opinion and if feasible introduce legislation to revise the NRS to a four-year statute of limitations."

Accepted the report of the Medical Advisory Committee to Vocational Rehabilitation with the reference committee recommendation that future reports include amount of budget, number of personnel, number of patients trained or treated and the success rate of training. The House requested further clarification of the new concept of rehabilitation.

Approved appointment of a committee to draw up guidelines for reporting and review of maternal mortality in Nevada.

Requested the Executive Committee to set up a means of daily information during the legislative sessions.

Approved recommending to the Nevada State Board of Medical Examiners that paramedical personnel not presently certified or licensed be certified by the Board of Medical Examiners.

Approved:

"WHEREAS, The American Medical Association, the CIO-AFL and Senior Citizens group, the Department of Health, Education and Welfare and the United States Supreme Court have all expressed similar opinion; therefore be it

"RESOLVED, The Nevada State Medical Association again declare that chiropractic is an unscientific cult and all means of informing the public of this fact will be stressed by this Association."

The House received information relative to dissatisfaction with administrative rulings of the MSRMP toward the State of Nevada and approved the following resolution:

"BE IT RESOLVED, That in the event of loss of a present fiscal agent for the Nevada portion of the Mountain State Regional Medical Program, that the Nevada State Medical Association will attempt to be designated as the fiscal agent on an interim basis in order to continue already operational programs."

Approved the Reference Committee recommendation to encourage the utilization of the closed circuit TV on both campuses of the University of Nevada, for statewide committee meetings in an effort to conserve time and money and achieve greater committee member participation.

Adopted the following resolution:

"WHEREAS, The purpose of the Nevada State Medical Association is the extension of medical knowledge, the advancement of medical scienee and to elevate the standard of medieal education; and

"WHEREAS, The Nevada State Medical Association does not presently have a system for members to record their participation in continuing education programs; and

"WHEREAS, Determination of amount and types of continuing education necessary for qualification can best be determined at the state and local level; therefore be it

"RESOLVED, That the Nevada State Medical Association encourage its members to participate in continuing education programs relating to the type of practice, that is, specialty or family practice, of the individual members; and be it further

"RESOLVED, That the minimum levels of continuing education be determined by the physician members of the Nevada State Medical Association in its component societies in each respective grouping, that is, specialty and family practice, and that the final decision of minimum requirement be by majority vote in each group at the component society level; and be it further

"RESOLVED, That the Nevada State Medical Association establish a recording system in continuing education for its members."

The House approved the following resolution:

"WHEREAS, The increasing complexity and scope of medical care is making ever increasing demands for medical personnel to deliver this care; and

"WHEREAS, This demand has increased the numbers of variety of assistants to physicians; and

"WHEREAS, The popular conception of the physician's assistants to aid the physician not practicing in the urban centers really constitutes only a small facet of the overall problem in Nevada; and

"WHEREAS, There is no information as to the number and variety of such personnel necessary or desirable in the State of Nevada, as well as the educational practical experience and legal restraints necessary for such personnel; therefore be it

"RESOLVED, That the Nevada State Medical Association undertake to establish a joint commission of the Nevada State Medical Association, Nevada State Board of Medical Examiners, University of Nevada and members of the Board of Nursing to study the problem of physician's assistants in depth with the view of providing guidelines for education and training, as well as necessary legal restraints for such personnel."

The House approved:

"WHEREAS, The State Board of Medical Examiners is an appointed body of qualified physicians in the State of Nevada; and

"WHEREAS, The number of physicians serving are by obvious necessity limited, and the scientific expertise needful to adequately evaluate specific subspecialty applicants may not be represented; therefore be it

"RESOLVED, That the State Board of Medical Examiners be encouraged to make use of appropriate consultants in the examination of applicants when such expertise is not present in the membership of the Board."

Approved:

WHEREAS, Precedent has been established for reapportionment of various state bodies to more closely reflect the population distribution; and

"WHEREAS, The greatest number of physicians in any county in our state are practicing in Clark County; and

"WHEREAS, The burden on one representative to adequately review and screen is great; therefore be it

"RESOLVED, That the Board of Medical Examiners should be reapportioned to more nearly reflect the population distribution of this state; and further be it

"RESOLVED, That a copy of the Resolution be forwarded to the Governor."

The House approved a recommendation of Reference Committee C that in future years, when financially prudent, a professional public relations person or firm be hired to handle public relations for the Association.

The House requested the President to direct the Advisory Committee to Hospitals, Nursing Homes and Extended Care Facilities to be more active in future years.

The House approved the following resolution:

"BE IT RESOLVED, That the Legislative Committee of the NSMA pursue legislation regulating radiation equipment and the personnel who utilize this equipment."

The House accepted with approval the report of the Finance, Budget and Building Committee and the Reference Committee recommendation that:

1. The Association investigate the feasibility of a key personnel insurance policy which would provide funds temporarily to replace such key personnel in the event of a catastrophe; and
2. That the entire building fund operation be carefully examined in regard to equalizing rents for all occupants.

The House disapproved amending Article V., Section 1 of the Constitution to add a Speaker and Vice Speaker of the House of Delegates.

The House approved amendment of the Constitution, Article VI, Section 2, to read:

"There shall be one member of the House of Delegates elected from each component medical society for each fifteen members, or a fraction thereof. Tenure shall be for a period of two years."

Approved amending the By-laws:

Chapter V, Section 4, to change the words "Executive Secretary" to "Executive Director."

Chapter VI, Section 7, "Executive Secretary" changed to "Executive Director" and add, ". . . and may employ such other staff as may be deemed necessary for the proper operation of the Association."

Chapter VII, Section 1, add the Professional Education, Medical Schools and Scholarships Committee to list of Standing Committees (No. 14).

Chapter IX—Dues and Assessments—Section 1, first sentence changed to read, "The annual dues and assessments shall be determined by the House of Delegates and shall be levied on the members of the Association." Section 3, delete "and the Executive Committee," to read, "The annual dues and assessments shall be levied at the annual business meeting of the House of Delegates."

Section 4, delete ". . . and a member of the American Medical Association." This Section now reads: "To be eligible for membership in the Nevada State Medical Association, a physician must be a member of his component medical society."

Approved a By-laws change which will require action in the 1971 meeting, to make the Liaison Committee with the Nevada Hospital Association a standing committee. (No. 15)

The House approved the following resolution:

"RESOLVED, That the Nevada State Medical Association declare its desire and intention to establish the recognized peer review organizations for all health needs of the State of Nevada; that the peer review committee of Nevada be empowered to conduct peer review studies, retain professional advisory services and to obtain necessary grants in aid that might be required to activate the peer review organization; that the Nevada State Medical Association make its declaration of intention known to the AMA and the Department of Health, Education and Welfare."

The House referred three resolutions relative to Professional Liability to Legal Counsel for reveiw as to feasibility and wording, then to appropriate committee for study.

Approved the following Resolution:

"WHEREAS, Many third party programs (insurance) enter into the financial transactions between physicians and patients; and

"WHEREAS, Physician members of the Clark County Medical Society are frequently harassed by such third parties concerning physicians' fees; and

"WHEREAS, The Clark County Medical Society is asked to intervene in disagreements between third party insurance programs and the physicians; and

"WHEREAS, The Clark County Medical Society has established an Adjudication Committee for review of patient care and fees for this care when indicated; therefore be it

"RESOLVED, that the Nevada State Medical Association establish a similar committee for the State of Nevada; and be it further

"RESOLVED, The other component societies establish their own Adjudication Committees."

Approved recommendations of Reference Committee E that immediate negotiations be conducted by the NSMA Insurance Committee with the Welfare Division regarding fees (Title XIX program) for the next biennium; and officially notify the Welfare Division of appointment of the review or adjudication committees as they are appointed; that a new informational letter be sent to the membership regarding the CHAMPUS program to keep them abreast of the changes in the present operation of the program. The House received information that Nevada Blue Shield may, in the near future, service the Federal Employees Program on a usual and customary fee basis. Approved the Reference Committee recommendation that component medical societies forward names of members of adjudication or peer review committees to the NSMA and these names be forwarded to third-party carriers promptly. The Reference Committee requested, and the House approved, that the membership complete the questionnaires sent them by an independent accounting firm, for the Nevada Industrial Commission, in order to complete the survey of usual and customary fees.

Approved two resolutions as follows:

"RESOLVED, That the NSMA recommend requirements for appointment to Medical Review Boards (Nevada Industrial Commission). These requirements include: (a) active participation in County Medical Society and NSMA activities; and (b) certification by Specialty Boards or Fellowship in Specialty Colleges, or AAGP; and (c) written acceptance of appointments to the Medical Review Board and intention of attending meetings of the Board."; and

"RESOLVED, That the NSMA request the State Legislature to revise N.R.S. 616.910.3 to remunerate physician members of the N.I.C.'s Medical Review Board at not less than $25.00 per hour and not less than $50.00 per hour for meetings other than those regularly scheduled."

The House approved Elko, Nevada as the site of the 1974 Annual Meeting, and Reno for the 1975 meeting.

Approved that in future CHAMPUS negotiations be carried out by the full Insurance Committee rather than a subcommittee.

Observed a moment of silence in memory of deceased members:

Edgar L. Compton, M.D.
James L. Hamill, M.D.
Raymond E. Stone, M.D.
Carroll C. Stauff, M.D.

The House elected the following to serve as Officers of the Association in 1970-71:

V. E. Elliott, M.D., President
William D. O'Gorman, M.D., President-elect
John P. Sande, M.D., Secretary-Treasurer
Leslie A. Moren, M.D., AMA Delegate (1971 and 1972)
Kenneth E. Turner, M.D., AMA Alternate Delegate (1971 and 1972)

Elected Nevada Blue Shield Plan Board of Directors:

Harry J. McKinnon, Jr., M.D., 3 years
John W. Callister, M.D., 3 years
Arthur E. Scott, M.D., 3 years
Mr. Jordan Crouch, 3 years
Richard D. Grundy, M.D., 2 years
John M. Read, M.D., 2 years
Thomas S. White, M.D., 2 years
Mr. Arthur Smith, 2 years
Charles D. Lanning, M.D., 1 year
William M. Tappan, M.D., 1 year
Mr. Robert McAdam, 1 year
Mr. John Mormon, 1 year

Re-elected officers for Nevada Physicians Service, Inc.:

Arthur E. Scott, M.D., President
Richard C. Sheretz, M.D., Vice President
William M. Tappan, M.D., Secretary-Treasurer
Reed J. Anderson, M.D., Member-at-large
Joseph M. George, Jr., M.D., Member-at-large
Richard D. Grundy, M.D., Member-at-large
Charles D. Lanning, M.D., Member-at-large
Peter Rowe, M.D., Member-at-large

Re-elected officers of Nevada Medical Care, Inc.:

John M. Read, M.D., President
Jack S. Hirsch, M.D., First Vice President
Donald D. Wicker, M.D., Second Vice President
Joseph M. George, Jr., M.D., Secretary-Treasurer
V. E. Elliott, M.D., Member-at-large

Speaker Salvadorini thanked the House, Executive Committee, committee chairmen, and the membership, for their cooperation during the year and for the privilege of serving as NSMA President. He introduced Dr. V. E. Elliott and installed him as President.

Dr. Elliott presented the President's gavel to Dr. Salvadorini and spoke briefly of his desire that the Narcotic Addiction, Drug Abuse and Alcoholism Committee organize promptly to investigate these problems and suggest ways in which the medical association can take an active role in controlling the use and availability of drugs, and also correct or direct the thinking of young people in regard to this popular, and apparently appealing, form of self-destruction.

He touched on the Bennett Amendment, National health insurance and government regulation of fees and remarked that unless the American medical profession can unite through its state associations and, under the leadership of the AMA, very forcefully make clear not only our objections to some of the current programs, but perhaps our refusal to care for patients under them, we will very soon have a regimented socialized system of medical care.

Adjournment was at 2:05 p.m.

Dr. N. Balfour Slonim of Denver participated as guest faculty in the Menorah Medical Center Seminar entitled "Comprehensive Care in Pulmonary Diseases," lecturing on pulmonary physiology.

This Danciger Institute Seminar was held in Kansas City, Missouri January 13-15, 1971.

OBITUARIES

Colorado

Leo W. Bortree, M.D.

The Colorado Medical Society lost the last of its pre-World War II Presidents when Leo Bortree 87, died in his home city of Colorado Springs, Dec. 17, 1970. For more than forty years he was a powerful, but always modestly humble, leader—not only in his chosen specialty of internal medicine, and not just in county and state medical societies, clinical clubs and voluntary health organizations, but in churches, Masonic groups, musical circles, Chambers of Commerce and in the field of higher education.

Leo William Bortree was born March 26, 1883, in Sterling, Pa., and came to Colorado Springs with his widowed mother, a school principal, when he was a small and sickly child. While regaining his health he read constantly, and with his mother's tutoring he so mastered Latin that he read the classics in their original Latin before he entered high school. He graduated cum laude from Colorado College with a Phi Beta Kappa key and went on to Harvard Medical School where, as he had in prep school, he led most of his classes.

When he returned to Colorado Springs to begin practice his many and varied talents, approaching those of a true genius, manifested themselves: for teaching, for organizing, for modestly guiding others without their realizing that they were being guided and for winning their respect and love at the same time, for quiet listening and never forgetting what he had learned. He became team physician for the Colorado College athletic teams, soon medical advisor to the entire college, later served 14 years on its Athletic Board, still later became a member of the Colorado College Board of Trustees; finally holder of its rarely granted Honorary Sc.D.

During World War I as an Army Medical Corps Captain, Dr. Bortree admitted the first patient to "Army General Hospital No. 21," soon renamed Fitzsimons General Hospital. He designed, equipped, and for a year directed that famed hospital's first laboratory. Through World War II he led El Paso County's Advisory Board for Selective Service.

Leo Bortree had held every office in the El Paso County Medical Society. He was the organizer and a later President of the Colorado Springs Clinical Club, Treasurer of the Colorado Medical

Society for nine years before becoming its President for the 1938-39 year, and in 1947 he was named the first Chairman of the "Board of Supervisors," whose title was later changed to "Grievance Committee." Its rules and operating regulations remain essentially unchanged—he designed and wrote them.

For years he was examining physician and board member of the Nutrition Camp School, and was its president for two years. He was a board member of both the El Paso County and Colorado State Tuberculosis Associations and of both the El Paso County and Colorado State Child Guidance Clinics. He was a long-time board member of the Colorado Springs Chamber of Commerce, served many terms as vestryman for Grace Episcopal Church, an organizer and board member of the Colorado Springs Symphony Orchestra, Past President of the Winter Night Club, the Colorado College Alumni Association, and the American Student Health Association.

With all of this plus more committee chairmanships than could be counted, Leo Bortree never seemed to understand why folks kept appointing him or electing him to important positions, or why they always so readily agreed to his suggestions for organizing this or that new civic activity. His usual response to each request that he permit his name to be proposed for an important directorship or presidency was: "Oh, I'm not that good." But his work, particularly as observed by his medical peers, was not only "that good," but inevitably better. He always called himself a follower, but he was a real leader. And he was expert in other fields; an excellent typist, his self-typed letters were literary gems; self-effacing as a public speaker, his off-the-cuff comments in simple but exquisitely chosen language could bring tears down the cheeks of half his audience, thirty seconds later convulse them all into belly laughs, make his points clearly and firmly. Then he would sit down and whisper to his seat-mate: "Now, really, I was terrible tonight, wasn't I?"

Leo Bortree retired at age 70 and re-entered Colorado College for "more refinement" with advanced courses in geology and photography, his favorites of many hobbies. He was already expert in both those fields.

He is survived by one son, David W. Bortree, Ph.D., of Carbondale, Ill., his wife having preceded him in death in 1955.

George W. Stiles, MD, retired laboratory director for the Colorado Department of Public Health, died December 16, 1970 at the age of 93.

He was born June 14, 1877 in New York and moved to Oklahoma in 1891. He was graduated from Oklahoma State University in 1900 and served as assistant professor of biology at Oklahoma State for the following year. Then he joined the pathological division of the U.S. Department of Agriculture's Bureau of Animal Industry in Washington, D.C. While in Washington, he received his M.D. and Ph.D. degrees from George Washington University.

He was married to the former Bessie A. Loud June 30, 1902, in Washington, D.C.

After moving to Denver in 1912, he established and directed the bureau's first research laboratory and held that position until retirement at the age of 70.

Following his retirement from the agriculture department, he was asked to direct the state health department laboratory, a post he held for six years.

He was author of more than 90 scientific papers, listed in the "Who's Who in Medicine and Science," and he was especially honored for 50 years' service to medicine by the Denver Medical Society.

In addition to his widow, Doctor Stiles is survived by two sons, Dr. William W. Stiles of El Cerrito, California, and Merritt L. Stiles of Miami, Florida; a daughter, Miss Alice E. Stiles of Castle Rock, and a brother, Lee R. Stiles of Cushing, Oklahoma.

John I. Zarit, M.D.

The Colorado Medical Society owes its remarkable growth in post-War II public health activity primarily to one man: John Zarit, who died Dec. 16, 1970, after a losing battle with a malignancy of the colon.

When he returned in 1946 from North Africa as an Army Medical Corps Major, he simultaneously resumed his Denver internal medical practice and began the reactivation of an almost moribund CMS Committee on Tuberculosis Control. Within a few years his success brought about his appointment as supervising chairman over all eleven of the State Society's public health committees. He gently but effectively persuaded at least a hundred other doctors to get busy on worth-while public health projects. He routinely started each one by giving a fine country club dinner—at his personal expense—to the committee concerned, so how could they turn down his reasonable requests?

John Zarit's ability to get things started, and see them through, was not overlooked by the House of Delegates, which unanimously chose him as the Society's President for 1958-59. He disappointed no one, and gave the Society a remarkably successful administration. The Colorado Public Health Association voted him its coveted Florence Sabin Award in 1957. His love of family, of his religion and his practice seemed equalled by his intense support of every sound medical society activity.

John Isadore Zarit was born in Brooklyn, Jan. 9, 1900, but in 1911 his parents brought him to

Denver, his permanent home since then. He attended Denver public and high schools and the University of Colorado, winning his MD in 1923. He had been out of school several months as a soldier in World War I. He interned in Brooklyn and after a residency at Colorado's Jewish Consumptives Relief Society began practice, which was always a busy one for him.

His career included such positions as assistant director of the tuberculosis division of Denver General Hospital, medical director of Sands House, both for many years, the presidencies of the medical staffs of both St. Anthony and Beth Israel Hospitals, and special consultant in internal medicine to several other hospitals. He served a number of terms on the Board of Trustees of Colorado's Blue Shield organization and retired from that Board in 1966 after six years as Vice President of Blue Shield. He was a delegate to the White House Conference on Aging. He served almost all of a six-year term on the Colorado State Board of Health, but resigned when the remainder of the Board appointed him as Colorado's Medicare Consultant to the State Health Department, a position he still held at the time of his death.

John Zarit was a member of the Hebrew Educational Alliance, B'nai B'rith, and Columbine Masonic Lodge. He was a great student and constant reader of the Hebrew classics and devout in his religion. Usually a man of serious, thoughtful mien, yet he had a quick wit, fast repartee, and a seemingly inexhaustible store of humorous stories, usually ribbing his own race.

Survivors include a son, N. Bryce Zarit of Denver and a daughter, Miss Mozell Zarit of Sacramento, Calif.

Edward Lee Harvey, MD, prominent Denver physician, died December 14, 1970. He was 72.

Born June 2, 1898, in Denver, he was graduated from the University of Colorado Medical School in 1923.

He was married to Viola Prey in Denver.

He served as a major in the Army Medical Corps during World War II.

He was associate Clinical Professor of Obstetrics and Gynecology at the University of Colorado Medical School until 1946.

Doctor Harvey was a member of the Colorado and Denver Medical Societies, American College of Surgeons; International College of Surgeons; Central Association of Obstetricians and Gynecologists; Denver Medical Club; Denver Athletic Club, and Denver Country Club.

In addition to his widow, he is survived by a son, Dr. Duval Edward Harvey of Denver; a daughter, Mrs. David Dines of Omaha, Nebraska, and seven grandchildren.

Frederick E. Willett, MD, Steamboat Springs physician for more than 50 years, passed away December 21, 1970, at Routt County Memorial Hospital.

Doctor Willett was born in Woodbine, Iowa April 7, 1883. His medical course was taken partly at the University of Iowa, at Northwestern University and University of Colorado. He completed his internship at St. Luke's Hospital in Denver and was licensed to practice medicine in Colorado in 1912. With the exception of a few months in Laramie, Wyoming his entire professional practice was in Steamboat Springs. He went to Steamboat Springs in 1912 and ran a small private hospital from 1915 to 1950 when a Community Hospital was started. Because of failing eye-sight he gradually quit work until 1958 when he retired from active practice. He received his 50 year pin from the Colorado Medical Society in 1961.

Doctor Willett's continuing service to his community was one of dedication, patience and unselfishness in his concern for others. He ministered to others when there was little hope of physical recovery; lightened their burdens of despair and gave his time and skill to relieve the sick.

He was a member of the Northeast Medical Society and a past vice-president of the Colorado Medical Society.

Utah

Adrian S. Pugmire, MD, Salt Lake City otolaryngologist, died December 12, 1970, at the age of 66. The son of a physician, Doctor Pugmire was born August 25, 1904, in Afton, Wyoming. He was married to Gayle Maxine Birrell on September 18, 1929. She died July 3, 1968.

A 1933 graduate of Northwestern University Medical School, Doctor Pugmire later completed an internship at St. Luke's Hospital in Duluth, Minnesota, and a residency at the Multnomah County Hospital affiliated with the University of Oregon. He also did postgraduate work at clinics in Germany, Hungary, and Austria.

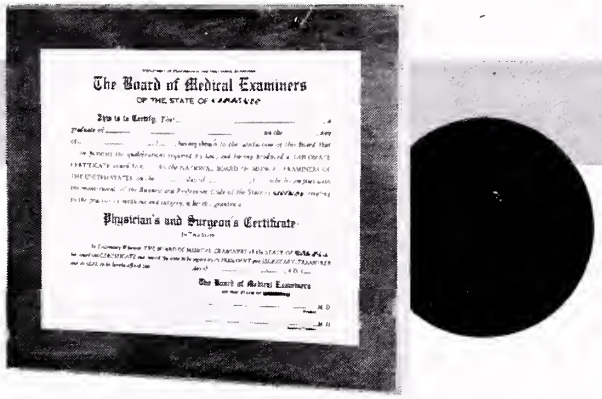
Doctor Pugmire served as a physician in the Salt Lake area for 35 years, and for some time had practiced with his father. At the time of his death, he was a member of the L.D.S. and Primary Children's Hospital medical staffs. He was a member of the Salt Lake County, Utah State, and American Medical Associations, and a member of the Utah Oto-Ophthalmological Society, serving as its Secretary-Treasurer in 1938. He was affiliated with Alpha Theta Phi Medical Fraternity, and also with the Ambassador Athletic Club. He was a veteran of World War II, having served as a Major in the U.S. Army.

Survivors include one son, Robert D., Wilmington, Delaware; four grandchildren; a sister, Mrs. George (Mildred) Lundquist, Glendora, California; and a sister-in-law, Miss Verla Birrell, Salt Lake City.

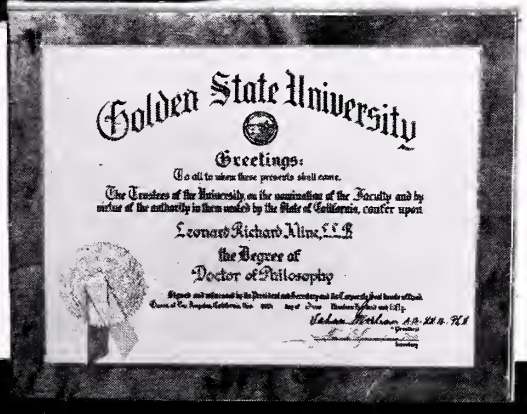
preserve those prized possessions

with *Perma Plaques**

Replace old fashioned glass framing with the beautiful, modern Perma Plaque mounting . . . unbreakable . . . washable . . . dustproof . . . prevents unsightly and harmful discoloration and deterioration of your degrees and photographs.



Perma Plaque lends added importance and dignity to all types of documents — even sheepskin and parchments, oftentimes making the certificate look like new by removing ugly wrinkles and minor tears.



Perma Plaques are used by leading medical boards and hospital associations to preserve and beautify their fellowship and membership certificates.

The wide variety of rich wood colors in which Perma Plaques are available add to the decor of any office.

Thousands of doctors throughout the country have discovered that with all the many advantages of custom beauty and lifetime protection afforded by the popular Perma Plaque mounting process, it actually costs no more than ordinary types of framing.

***Your document or photo is placed under clear plastic sheeting and then hermetically sealed to the finest hard dieboard laminated veneers which beautifully and permanently preserves your document. Perma Plaques are manufactured and guaranteed ONLY by the Perma Plaque Corp.**

GEO. BERBERT & SONS, INC.

1717 Logan Street **Denver, Colorado 80203** **Telephone 255-0408**

1903-1971—Our 68th Anniversary

THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

Adventures In Medical Writing: Edited by Robert H. Moser and Edwin DiCyan. Springfield, Ill., 1970, Thomas. 67 p. Price: Review.

Arterial Surgery: By: H. H. G. Eastcott. Philadelphia, 1969, Lippincott. 412 p. Price: $22.00.

Bunnell's Surgery of The Hand: By Joseph H. Boyes. 5th ed. Philadelphia, 1970, Lippincott. 727 p. Price: $27.00.

Cardiovascular Surgery: By Ormand Clinkenbeard Julian and others. 2nd ed. Chicago, 1970, Yearbook Medical Publishers. 335 p. Price: $13.50.

Computers in Electrocardiography: By Josef Wartak. Springfield, Ill., 1970, Thomas. 250 p. Price: Review.

Current Medical References: Edited by Paul J. Sanazaro and Milton Chatton. 6th ed. Los Altos, California, 1967, Lange. 673 p. Price: $12.00.

Disability-Determination and Evaluation: By Henry H. Kessler. Philadelphia, 1970, Lea. 250 p. Price: $9.75.

Epithelial Tumors of The Salivary Glands, v. 1 (Major Problems in Pathology): By Winston Evans and Alan H. Cruickshank. Philadelphia, 1970, Saunders. 299 p. Price: $13.05.

Hernia Repair Without Disability: By Irving L. Lictenstein. St. Louis, 1970, Mosby. 210 p. Price: $27.50.

Immunity of Malignant Disease: By Jules E. Harris. St. Louis, 1970, Mosby. 251 p. Price: $15.00.

Operative Surgery: Edited by Charles Rob and Rodney Smith. 2nd ed. Philadelphia, 1970, Lippincott. 15 v. Price: $315.00.

Peripheral Arterial Disease: By Robert L. Richards. London, 1970, Livingstone. 126 p. Price: $10.50.

Sudden Infant Death Syndrome: By Abraham B. Bergsma and others. Seattle, 1970, University of Washington Press. 248 p. Price: $10.00.

Book Review

THE EXCEPTIONAL PARENT

The Exceptional Parent, a new magazine, is announced for distribution beginning in September, by the Psy-Ed Corporation, publishers. *The Exceptional Parent*, unique among educational and professional publications, will aim "to provide practical help for the parents of children with disabilities." It will combine the knowledge of experts with the day-to-day experiences of laymen. The magazine will deal with many issues that affect the exceptional child and will cover such topics as the role of the family, the nature and role of the various professional groups with whom the family is apt to come in contact, and the ways in which certain aids can be helpful. Information will be easily understandable, practical as well as theoretical. *The Exceptional Parent* will also provide a means for parents to exchange ideas, share concerns, and discover new approaches to common problems.

The founders and editors of *The Exceptional Parent* are three professional colleagues who are practicing psychologists and university professors: Lewis Klebanoff, Stanley Klein and Maxwell Schleifer.

Dr. Klebanoff is Director of the Massachusetts Department of Mental Health—Boston University School of Education Joint Center for Developmental Research, a lecturer at Harvard Medical School, and an advisor to the United States Office of Education on early childhood education for the handicapped. He was instrumental in the establishment in Massachusetts of the first statewide preschool program for children with developmental disabilities.

Dr. Klein is an Assistant Professor of Psychology at the University of Massachusetts at Boston and a former member of the Psychiatry faculty at the Boston University School of Medicine. He is Secretary of the Board of Trustees of the Massachusetts Association for Retarded Children Retardate Trust and a member of the Professional Advisory Committee of United Cerebral Palsy of Greater Boston. Formerly, Dr. Klein was heard daily on CBS radio in Boston on a program "Child Psychologist—At Your Service."

Dr. Schleifer is an Associate Professor at the University of Massachusetts at Boston and Executive Director of the Warren Center for Emotionally Disturbed Children. He is the former Chief Psychologist at the Douglas A. Thom Clinic for Children and the former Field Unit Director for the Judge Baker Guidance Center. He has written papers on the role of the family in the life of the educationally disabled child and alternatives to residential care for emotionally and intellectually handicapped children.

The Editors are assisted by an Editorial Advisory Committee which includes: Professor Burton Blatt, Director of Special Education and Rehabilitation, Syracuse University; the Honorable Michael Dukakis, attorney and member of the Massachusetts House of Representatives; Dr. Gunnar Dybwad, Professor of Human Development, Brandeis University; Dr. Herbert Grossman, Director, Illinois State Pediatric Institute; Goodwin Katzen, Executive Director of the Rockland County (New York) Center for the Physically Handicapped; Professor Albert Murphy, Chairman of the Department of Special Education, Boston University; and Barbara-Jeanne Seabury, Director, National Research Center, Washington, D.C.

MEETINGS

First Annual Course on Inhalation Therapy for Children and Young Adults Pediatric Pulmonary Center, New Mexico Regional Medical Program

Albuquerque, New Mexico

February 22-26

For information concerning this meeting, contact Roy F. Goddard, M.D., Medical Director, Pediatric Pulmonary Center, New Mexico Regional Medical Program, 5200 Gibson Blvd., S.E., Albuquerque, N. M. 87108.

American Academy of Orthopaedic Surgeons 38th Annual Meeting

Civic Auditorium-Brooks Hall, San Francisco, California

March 6-11, 1971

Subjects to be covered in the 102 instructional courses include rheumatoid arthritis, bone physiology, cerebral palsy, fractures, children's diseases, sports injuries, and spine, knee, hip, and hand surgery. Every phase of disorders of the musculoskeletal system will be considered.

For further details, contact Dr. Charles V. Heck, Director, 430 No. Michigan Ave., Chicago, Illinois 60611.

23rd Annual Midwest Cancer Conference

Broadview Hotel, Wichita, Kansas

March 26-27, 1971

"THE PHYSICIAN VERSUS CANCER"

The Medical and Scientific Committee of the Kansas Division of the American Cancer Society invites all physicians in the entire midwest to attend this two-day graduate course on Cancer. Free registration. A.A.G.P. credit.

For additional information, contact J. A. Gleason, M.D., Chairman, 1971 Midwest Cancer Conference, 824 Tyler St., Topeka, Kansas 66612.

8th Annual Rocky Mountain Bioengineering Symposium

Colorado State University, Ft. Collins, Colorado

May 3-5, 1971

This meeting covers all areas of Engineering in the Medical and Biological sciences. Registration is $20.00, $1.00 for students. To pre-register or obtain further information, contact: Rocky Mountain Bioengineering Symposium, Inc., P. O. Box 59, USAF Acadamy, Colorado Springs, Colorado 80240.

Nineteenth Annual Clinical Meeting American College of Obstetricians and Gynecologists

San Francisco, California

May 3-6, 1971

The program will develop three themes, Perinatology, Pelvic Infections, and Diseases of the Vulva, one each day. The general sessions, seminars, correlated seminars, round tables and reports on clinical investigations will each relate to the day's theme.

Non-Fellows may register to attend both the meeting and the Postgraduate Courses which precede the meeting on May 1 and 2.

Contact: Donald F. Richardson, 79 West Monroe Street, Chicago, Illinois 60603.

Postgraduate Course In Allergy In Cooperation with the Wyoming State Medical Society

Holding's Little America, Cheyenne, Wyoming

June 27-July 2, 1971

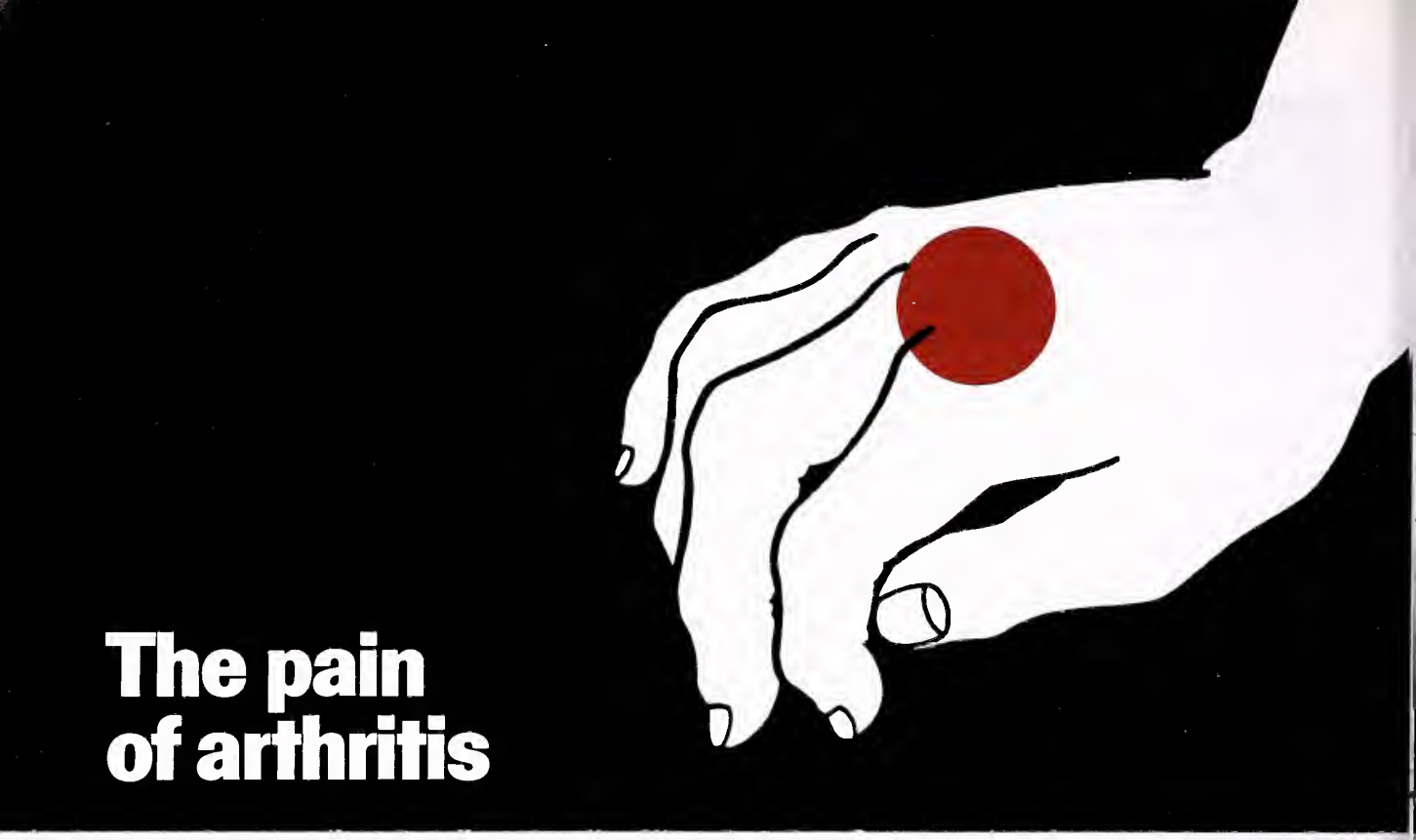
For information, program and registration, write to: Russell I. Williams, M.D., Director, Professional Building, 1605 East 19th St., Cheyenne, Wyoming 82001.

Montana Radiological Society Biennial Symposium

Holiday Inn, Bozeman, Montana

July 28-30, 1971

For further information, contact Colvin H. Agnew, M.D., President, Montana Radiological Society, Box 1543, Billings, Montana 59103.



The pain of arthritis

relieved with MEASURIN® q. 8h. dosage

Double-strength Measurin timed-release aspirin offers a new kind of control for your arthritic patients. Each 10-grain tablet has over 6,000 microscopic reservoirs that release aspirin at a controlled rate—some right away and some later on. This means—fast relief, followed by long lasting relief. Throughout the day, Measurin gives your patients freedom from a 4-hour dosage schedule. Measurin can help your patients get a good night's sleep, uninterrupted by the need for an extra dose of aspirin. And, taken at bedtime, it also helps ease morning joint discomfort and stiffness.

For Professional Samples write:
Breon Laboratories Inc.
Sample Fulfillment Division
P.O. Box 141
Fairview, N.J. 07022

BREON BREON LABORATORIES INC.
90 Park Avenue, New York, N.Y. 10016
Subsidiary of Sterling Drug Inc.

MEASURIN®
TIMED-RELEASE ASPIRIN

ECONOMICAL • EFFECTIVE • LONG LASTING PAIN RELIEF
Dosage: 2 tablets followed by 1 or 2 tablets every 8 hours as required, not to exceed 6 tablets in 24 hours. For maximum nighttime pain relief and to help relieve early morning stiffness, 2 tablets at bedtime.
Available: Bottles of 12, 36 and 60 tablets.

NATIONAL AFFAIRS

Summary of Actions of
The House of Delegates
American Medical Association
24th Clinical Convention

Boston, Massachusetts

November 29-December 2, 1970

As at recent past conventions, strong security was observed but demonstrations were limited to a few of the perennial pickets. There was a great aura of positiveness about the meeting, ranging from the opening remarks of AMA President Dr. Walter C. Bornemeier, on adequate health facilities, through the reaffirmed statement on professional ideals and creation of a new class of membership, which gives interns and residents a direct voice in proceedings of the AMA.

Presidential Address

Dr. Bornemeier told the House of Delegates "The American Medical Association must 'take a leadership role' in development of neighborhood medical clinics, which are fast becoming 'the focal point for delivery of most medical services.'

"As the government takes on an increasing role in health care, as costs continue to rise, as local and state governments are confronted with increasing demands on limited public funds, as groups such as organized labor continue to push for nationalized health services, we can expect federal legislation to zero in on neighborhood medical clinics. AMA leadership is thus vital, 'so that we may insure that medical clinics remain a part of private practice.' "

Dr. Bornemeier's proposals include: Creation of a program to assist physicians in setting up adequate health facilities, for group or solo practice. A number of services would be covered, including architectural drawings, site requirements, management and operational plans, staffing requirements, equipment schedules and suggestions for obtaining financing from local banks.

"In essence," Dr. Bornemeier said, "I seek a means whereby young physicians can be well advised and local medical societies will be involved in organizing and maintaining control of medical clinics. I believe that if we just leave it up to each medical community to act in its own way, medicine will default to hospitals, to government and to social service agencies who even now vie for control of the mechanisms which deliver medical care. The young doctor going into practice must be able to see that AMA is here to help.

"As the concept of charity medicine fades while insurance plans grow, inducements to doctors to establish private practice groups in the ghettos should be considered, such as low cost federal loans or Hill-Burton type grants. 'The poor must have access to medical care on the same basis as the most affluent citizens.'

"The AMA should conduct a periodic survey of manpower needs in each specialty across the country. Results of the survey would go to each senior medical student showing how many general surgeons, internists, etc., are now available and how many are needed. This would help the student in choosing a specialty in demand, and help balance those specialties in short supply."

Dr. Bornemeier repeated suggestions he made upon inauguration last June as the AMA's 125th president, that medical education be shortened to six years, that the method of training specialists be reviewed to emphasize ambulatory patient care rather than in-hospital care, and that new MD's train at the side of experienced physicians in preceptorship programs.

He added, "This House should be concerned with plans to bring a substantial portion of the graduate training programs back under the control of the practicing physician, instead of the present tendency to shift supervision to employes of the hospital administration."

Dr. Bornemeier complimented the House for having "acted responsibly" in the past, on updating policies. He cited the entry into the field of student loans, approval of a study of neighborhood health centers, and requesting of federal grants for the study, along with approval of sponsorship of professional liability programs jointly with state associations.

The president's new proposals were received with enthusiasm by many delegates and studied by reference committees. Later, suggestions concerning medical education were referred to the Council on Medical Education to "aid it in its deliberations" on the problems discussed, while other proposals were referred to the Board of Trustees "for careful consideration by the appropriate AMA councils, committees and staff."

House Actions

From November 29 through December 2 the House was in session 10 hours and 50 minutes, during which time it considered 32 reports and 71 resolutions. Following is a report of House Action on:

Abortion

Although it appeared that a renewed and lengthy debate on abortion would ensue, delegates deemed otherwise: They rejected attempts to change the policy statement adopted at the 1970 annual convention and, after brief discussion, reaffirmed that policy.

Membership

The House created a new class of membership for interns and residents. The action, recommended by the Board of Trustees, will allow such members to elect a delegate and alternate to the House. Dues will be $20 annually and the new members must convert to active or service membership upon completion of their training programs. The House also approved revision of the Bylaws to provide for a direct membership category, with payment of AMA membership dues by doctors in the Veterans Administration, non-uniformed physicians of the Public Health Service and other fulltime civilian physicians employed by federal agencies, who are ineligible for membership in a component medical society. Uniformed Public Health Service physicians remain service members.

Peer Review

The House reaffirmed its approval of Peer Review Organization, as contained in the AMA Medicredit program, and urged that "all components of organized medicine give energetic support to furthering the effective implementation of peer review." Action came almost simultaneously with Senate Finance Committee modification of several provisions in the Social Security Bill regarding professional standards review organizations (PSRO). The AMA had objected to the provisions, among which were: pre-admission approval requirements; national norms of care; federal ownership of PSRO files; a $5,000 fine for violations, and review of all services provided.

The Senate committee announced that it had: deleted the requirement of federal ownership of files; deleted the $5,000 fine but retained provisions for refunds of fees; eliminated national norms but retained provisions for regional norms, and eliminated the necessity of pre-admission approval for all elective procedures, but allowing the PSRO to specify those situations where pre-admission would be required.

The committee report also was to specify that the PSRO could not be a medical society, but could be organized and set up by a medical society, such as a foundation. The bill now provides that no PSRO shall utilize a non-physician to make final determinations regarding professional conduct of any physician, or any act performed by a physician in the exercise of his profession. The House directed the Board of Trustees to continue to seek appropriate changes in the bill.

Professional Ideals

"The age old professional ideal of medical service to all, whether able to pay or not," affirmed by the House in 1934, was emphatically reaffirmed by delegates in Boston. They acted on a recommendation by the Judicial Council, which said it had received "many letters complaining of an apparent preoccupation by an increasing number of physicians with the financial aspects of their medical practice."

Ideally, the physician should be paid promptly, the Council said. But it added that if he is not paid as promptly as other creditors, "he should recall that he is a professional man with all the perquisites that term implies." It criticized such "real examples" as adding 1½ per cent interest per month to the bill of a patient on a small pension, and refusal to see a patient because the patient's balance was too high. "The council believes these examples are the exception. . . . Nonetheless, (they) reflect adversely on the whole profession and especially on the countless physicians who extend credit willingly or write off old accounts because they are dedicated to serving mankind." The House not only adopted the report, it urged wide dissemination of it to component and constituent medical societies.

Health Occupations

The terms "ancillary" and "paramedical" will no longer be used in AMA statements, but will be replaced by the term "allied," the House decreed. It also approved a Board of Trustees report dealing with licensure of health occupations. Recommendations in that report include: State legislatures be urged to amend state medical practice acts to remove any barriers to increased delegation of tasks to allied personnel by physicians; that alternative routes to licensure, such as job performance tests, be studied; that programs for periodically updating knowledge and skills of currently licensed or certified occupations be encouraged; and that the House of Delegates call for a nationwide moratorium on licensure of any additional health occupations.

Delegates are asking the American Hospital Association and American Public Health Association to join in supporting the moratorium. Consideration of a national "task force" to study the problem of licensure in detail was approved. Such a force would represent health professions, educators and governmental agencies.

Elections

The House defeated measures seeking to change the manner of electing members of the Board of Trustees. The measures would have had trustees elected at large and on a regional basis.

Convention Sites

Atlantic City was approved as the site of the 1975 annual convention, but only tentatively. The California delegation said final approval should be determined "on the basis of our experience in 1971," at the annual meeting in the New Jersey resort. The House agreed. In another move that brought smiles of anticipation to many faces, delegates approved Honolulu as site of the 1975 clinical convention. Dallas will be the site of the 1976 annual convention.

Miscellaneous

Osteopathic physicians are now eligible for the AMA Physician's Recognition Award, if they meet all regular requirements. In approving this step, the House noted that it is in line with previous actions which made osteopathic graduates eligible for approved internships and residencies. Delegates also voted to coordinate educational requirements for the Award with those for continuing membership in the American Academy of Family Practice.

The House urged expansion of third-party coverage for out-of-hospital care. It directs the AMA to seek immediate adjustment of all such programs to provide equal coverage for physicians' services, where rendered, and removal of restrictions which would require hospital care, where ambulatory services would be effective, in order for benefits to be paid. In another action, delegates urged that the insurance industry write their contracts to cover the newborn from the moment of birth, instead of after a waiting period as now observed. The latter was inserted in a resolution dealing with the upcoming White House Conference on Children.

Delegates gave "strong support" to the SAMA-MECO Project as an adjunct to undergraduate medical education, and asked constituent medical societies to consider supporting the project in their states. The full name is the Student American Medical Association Project for Medical Education and Community Orientation.

More than 250 students have taken part in the project in over 100 community hospitals, with 500 practicing physicians.

The House approved a Board of Trustees report calling on constituent associations to seek appropriate remedial state legislation in the field of professional liability, and encouraged the Committee on Professional Liability to continue to explore all aspects of the professional liability problems.

Delegates approved expansion of the Advisory Committee on Health Care of the American People to encompass multi-ethnic representation. The move grew out of a recommendation made after last June's annual convention, where a special reference committee held a public forum to hear the views of various groups on medical and health care.

Awards

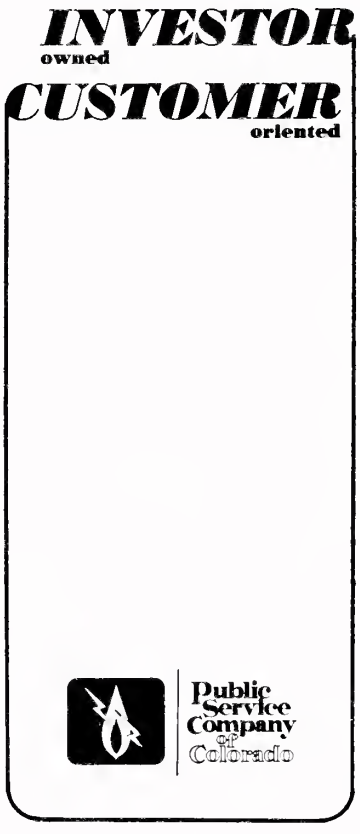
George R. Hermann, MD, of Galveston, Texas, was chosen to receive the 1971 Distinguished Service Award at the annual convention next June. Dr. Hermann, 76, is professor of medicine at the University of Texas Medical Branch in Galveston. He is a distinguished medical writer, with a bibliography of 360 titles in medical journals, and is author of three textbooks. Other nominees for the AMA's highest honor were Ward Darley, MD, former president of the University of Colorado School of Medicine, and Howard A. Rusk, MD, famed New York specialist in physical medicine and rehabilitation.

Malcolm A. Aldrich of New York City and J. Raymond Knighton of Wheaton, Illinois, were co-winners of the AMA's Layman's Citation for Distinguished Service to medicine. They also will receive their awards in June. Aldrich is former president and board chairman of the Commonwealth Fund, private philanthropic group which has made many grants to medical schools.

Knighton is president of the Medical Assistance Program, Inc., which provides medical supplies and services for 1,000 medical workers in developing nations around the world. Knighton founded the program in 1954 as an outgrowth of his stewardship of the Christian Medical Society. MAP shipped $10 million worth of supplies in 1969.

Respectfully submitted,

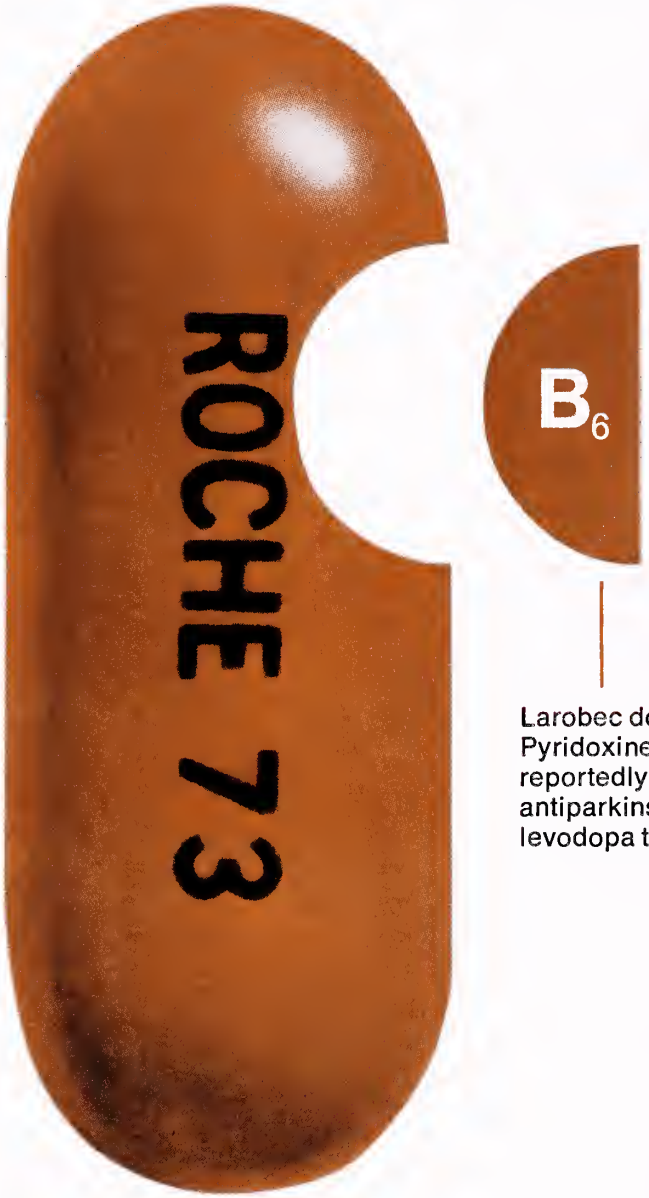
Gatewood C. Milligan, M.D.
AMA Delegate



the incomplete B-complex

SPECIFICALLY FOR LEVODOPA PATIENTS—NUTRITIONAL SUPPORT WITHOUT PYRIDOXINE

Larobec provides: B-complex vitamins, of particular importance to the patient who is on levodopa therapy and is deficient in water-soluble vitamins.



Larobec does *not* provide: Pyridoxine (vitamin B_6)—which reportedly reverses the antiparkinson effects of levodopa therapy.[1,2]

Larobec provides: Ascorbic acid, useful in assisting tissue repair in the debilitated patient.

Larobec™ Tablets

A high-potency nutritional supplement specific to the needs of patients with Parkinson's disease and syndrome on levodopa therapy—that describes new Larobec™ from Roche. Larobec provides the major B vitamins plus vitamin C—*but does not provide pyridoxine.* Thus, with its specially tailored formula, Larobec assures the patient important nutritional support without minimizing any of the benefits of levodopa therapy.

1. Duvoisin, R. C.; Yahr, M.D., and Coté, L. D.: *Trans. Amer. Neurol. Assoc., 94*:81, 1969.
2. Cotzias, G. C.: *J.A.M.A., 210*:1255, 1969.

Complete Prescribing Information:
Each Larobec tablet contains:
Thiamine mononitrate (vitamin B_1) 15 mg
Riboflavin (vitamin B_2) ..... 15 mg
Niacinamide .....100 mg
Calcium pantothenate ..... 20 mg
Cyanocobalamin (vitamin B_{12}) ... 5 mcg
Folic acid ..... 0.5 mg
Ascorbic acid (vitamin C) .....500 mg

Description: For prophylactic or therapeutic nutritional supplementation concomitant with levodopa therapy in patients with Parkinson's disease and syndrome, Larobec provides high potency dosages of the major B-complex vitamins, without pyridoxine (vitamin B_6) which has been reported[1,2] to reduce the clinical benefits of levodopa therapy. B-complex vitamins are essential in the anabolism of carbohydrate and protein and in hematopoiesis. Larobec also contains therapeutic quantities of ascorbic acid, a substance involved in intracellular reactions such as tissue repair and collagen formation.

Indications: Larobec is indicated for supportive nutritional supplementation when a water-soluble vitamin formula (without pyridoxine) is required prophylactically or therapeutically in patients under treatment with levodopa.

Warning: Administration of vitamin B_6 may be required if signs of pyridoxine deficiency develop. Larobec is not intended for treatment of pernicious anemia or other primary or secondary anemias. Neurologic involvement may develop or progress, despite temporary remission of anemia, in patients with pernicious anemia who receive more than 0.1 mg of folic acid per day and who are inadequately treated with vitamin B_{12}.

Dosage and Administration: One or two tablets daily, as indicated by clinical need.

How Supplied: Orange-colored, capsule-shaped tablets, imprinted Roche 73; bottles of 100.

References:
1. Duvoisin, R. C., *et al.*: *Trans. Amer. Neurol. Assoc., 94*: 81, 1969.
2. Cotzias, G. C.: *J.A.M.A., 210*:1255, 1969.

high-potency nutritional support for the levodopa patient

Larobec™

ROCHE Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

MEDICAL SCHOOL NOTES

University of Colorado School of Medicine

An anonymous gift of $20,000 has been made to the University of Colorado Foundation to establish the "Edgar Adler Library Fund" for the benefit of Denison Library at the CU Medical Center. The fund memorializes the late Edgar Adler, Denver and Nebraska investor and landowner, who was keenly interested in the advancement of medical science and education. Mr. Adler died in 1963. He was the uncle of Dr. Kenneth A. Kahn of Boulder, speaker of the House of Delegates of the Colorado Medical Society.

Income from the fund will be used to purchase medical books and other educational materials to extend the resources of Denison Library. The Library serves the CU Schools of Medicine, Nursing and Dentistry and the professional staffs of Colorado General and Colorado Psychiatric Hospitals, and its collections are utilized by practicing health professionals throughout Colorado, the region and the nation.

* * * * *

The Board of Regents of the University of Colorado approved a formal affiliation between the CU Medical Center and The Children's Hospital of Denver. The affiliation agreement was approved by the board of directors of Children's Hospital, the executive committee of the CU School of Medicine and the executive committee of the Medical Staff of Children's. The agreement will strengthen the close working relationship between the Medical Center and the Hospital which has existed for nearly 30 years. The affiliation agreement does not require the relocation of Children's; however, studies relative to the possibility of a new Children's facility located near the Medical Center campus will be initiated. The agreement states that a decision to move will, among other things, depend upon Children's satisfaction with this affiliation agreement, the availability of adequate capital financing for construction of a new hospital for Children's, and the availability of a sufficient amount of land properly located with reference to UCM. Children's would retain its independence and identity as a privately operated institution, maintaining ownership and control of its assets and endowment funds, under the administration of its own executive director and board of directors.

One of the objectives of the agreement is to provide sharing of clinical and professional facilities in order to develop a single specialized and comprehensive pediatric health service to serve the needs of Denver, Colorado and the Rocky Mountain Region.

The affiliation offers numerous mutual advantages and will be of "substantial" benefit to the Medical Center's educational, patient care and research programs. Another of the objectives of the relationship is to contain the cost of services through elimination of duplication, joint programs and the sharing of facilities and services.

In order to eliminate duplication of services, the pediatric programs at both institutions will be investigated and coordinated. Reimbursements between the two institutions for shared services and facilities will be on a cost basis, with the cost determined by the institution providing the service.

University of Nevada School of Medical Sciences

Television is being used to bring students and faculty at the University of Nevada, Reno, and practitioners and patients at Washoe Medical Center closer together for health sciences education.

Equipment installed at the hospital and at the anatomy building at the university permits transmission and reception of sound and picture in either direction. The project is funded by the federal Regional Medical Program and the university.

Dr. Richard H. Licata, director of medical curriculum and research for the School of Medical Sciences at the university, said it is contemplated that other hospitals in the Reno area will be linked to the system later.

Participants and observers are able to talk back and forth, in addition to the audio and visual telecast. Licata said the intertie supplements the traditional amphitheater in which students observe medical practitioners. Another value of the system is the opportunity for self-evaluation of instruction, especially through the playback of taped and filmed telecasts.

Coordinating with Dr. Licata are Dr. Ernest W. M. Reno, neurosurgeon; Carroll W. Ogren, Washoe Medical Center administrator, and Dr. Thomas Scully, center director of medical education.

Focal point for the weekly telecasts will be the neurology conference which is held each Thursday at Washoe Medical Center. Approximately 18 of the conferences will be covered by telecasts.

The pilot project will consist of live and taped telecasts between the university and the center on Thursday and Friday of each week. The Thursday sessions will include presentation and discussion of specific cases by a team of clinicians from the center. Each will be followed by a lecture from a university faculty member on related anatomy, physiology, biochemistry and pharmacology of the case in discussion.

Friday telecasts will include live presentations to pre-medical students covering basic neuroanatomy and physiology. Following will be a review by the students of the previous day's tape and an open two-way conference between university medical faculty and students and center clinicians.

* * * * *

The first in a series of talks on the nation's and Nevada's health care problems and solutions was presented Jan. 12 at the University of Nevada, Reno. The Health Care Lecture Series is sponsored by the School of Medical Sciences, Orvis School of Nursing and the Division of Health Sciences.

Dr. Robert J. Glaser, physician and vice president of The Commonwealth Fund, spoke at the no-host luncheon. Until taking his new post with The Commonwealth Fund recently, Dr. Glaser has been vice president for medical affairs and dean of the School of Medicine at Stanford University since 1965.

The Commonwealth Fund has given $418,000 to development of the new two-year medical school at the University of Nevada, Reno. The first class has been selected and will begin the study of medicine at the Reno campus next September.

* * * * *

The first 24 persons who will study medicine at the University of Nevada, Reno, will begin their studies in the new two-year curriculum of the School of Medical Sciences in September of 1971, and will be joined by another 36 students a year later. Each year thereafter, 48 new students are to be admitted. All but one of the students in the first class are Nevada residents and the lone outstater is a girl from Idaho.

From more than 1,000 applications for the 24 positions the committee attempted to select good, solid students who they believe will become outstanding practicing community physicians. They also were concerned with selecting students who are likely to return to Nevada to practice, particularly in smaller communities.

Dr. George T. Smith, Dean of the School of Medical Sciences, said the committee found so many well qualified Nevada students that it was felt they should be given the first priority, particularly since this is a state medical school. Nevada has never had more than 12 students admitted to medical schools in any previous year, and there is a backlog of qualified students in the state to be met. The girl from Idaho was accepted because the committee felt that one position in the class should be given to a person from a state that has no medical school and with which Nevada is cooperating through Regional Medical Programs, Western Interstate Commission for Higher Education, and other efforts.

University of Utah Medical Center

Five members of the Departments of Surgery and Pathology presented papers at the 3rd International Congress of the Transplantation Society at The Hague, Sept. 7-11, 1970. The five papers, presented by **Drs. K. Reemtsma, L. E. Stevens, C. W. Dewitt, D. Steinmuller,** and **J. S. Freeman** reported on the present studies at the University of Utah dealing with transplantation and immunopathology. The University Medical Center had one of the largest representations at the conference of any of the centers throughout the world, and is considered to be a leading center in the field of immunopathology.

The international journal, *Transplantation*, is edited by the Department Chairman of Pathology, Dr. Ernst Eichwald; the Associate Editor is Dr. D. Steinmuller, also of the Department of Pathology.

* * * * *

Dr. J. A. Abildskov, Professor of Medicine at the University of Utah Medical Center recently participated in the American College of Cardiology Circuit Course #22 which was jointly offered by the U.S. State Department. One of four faculty members selected to teach the course, Dr. Abildskov lectured in Caracas, Venezuela; Lima, Peru; and Buenos Aires, Argentina. He and his three colleagues were invited by the medical schools and governments of Venezuela, Peru, and Argentina to give a comprehensive course on recent advances in the field of cardiology.

Dr. Abildskov was joined in the course by Doctors Forrest H. Adams, Professor of Pediatrics, UCLA School of Medicine, C. Walton Lillehei, Professor of Surgery, Cornell Medical College, New York; and William W. Parmley, Associate Professor of Medicine, UCLA School of Medicine.

* * * * *

Three new radiological procedure areas are presently under construction at the University Medical Center. A new chest room, a fully automated unit designed to allow multiple X-ray exposures, is presently in the final stages of completion. This area will be able to handle a potential load of 200 patients per day.

Construction on a new three-room Special Procedures Suite is scheduled to be completed by May 1971. The area will house a neuroradiologic suite, a suite for special catheter studies and radiographic procedures, and a room for polytome laminography especially useful for evaluation of the temporal bone. A new file room, stenopool, and two Immediate Reading Rooms with automated reading boxes will also be located in the area.

Renovation of another area will provide a special procedures room for myelograms, bronchograms, and certain biopsy procedures. Further construction of a Research Pavilion and a Nuclear Medicine area and expansion of the radiation therapy area is planned for the near future.

University of New Mexico School of Medicine

Starting next fall, high school graduates may enter a new two-year Associate of Science degree program at the University of New Mexico. The two-year program trains medical laboratory technicians to aid the physician and pathologist in diagnosing and treating disease in clinics, hospitals and private laboratories. Class enrollment will be limited to 24 students, and deadline date for receipt of application and credentials is April 1.

The curriculum includes four semesters of laboratory sciences courses and academic subjects and a summer work program at an affiliated hospital in the state. This combination of formal instruction and clinical experience completes the training of the medical laboratory technician to meet his responsibilities as an important member of the health service team.

Graduates will be eligible to write the national examination for medical laboratory technician of the American Society of Clinical Pathologists.

To be admitted, a student must meet the basic entrance requirements described in the 1971-72 UNM bulletin and successfully complete a personal interview with the laboratory sciences admissions committee.

Communications regarding entrance to the program should be sent to the Director of Admissions at UNM.

* * * * *

The University of New Mexico School of Medicine has added its third Markle Scholar to the faculty—an unusual honor for any medical school in America.

Dr. Raymond C. Doberneck, professor of surgery, was named a five-year Markle Scholar while at Creighton University School of Medicine in Omaha, Neb. He joined the UNM faculty this fall.

The scholarship from the John and Mary R. Markle Foundation of New York is for $30,000, paid at $6,000 annually to the doctor's medical school over a five-year period. The sum helps pay the Markle Scholar's salary, and is not designed for any specific research project.

The 104 medical schools in the nation are each allowed to nominate one candidate each year for the scholarship, with 25 Markle Scholars selected.

The UNM medical school, now in its seventh year of teaching, has two other Markle Scholars: Dr. Perry A. Henderson, named in 1969, and Dr. Robert A. Anderson, named in 1966. Dr. Doberneck was named in 1961, and is entering the final year of his award.

WANT ADS

GENERAL PRACTICE FOR SALE. Retiring after 33 years of general practice in Grand Junction, Colorado. Office and equipment available in Medical Center. Write for details: 1270-1-3, Rocky Mountain Medical Journal, 1809 E. 18th Ave., Denver, Colorado 80218. 1270-1-3

PHYSICIAN LEAVING private practice. Excellent office equipment available including Burdick EKG, examining table, scale, etc. Buyer has access to established practice. Write P.O. Box 1270-2-3, Rocky Mountain Medical Journal, 1809 East 18th Avenue, Denver, Colorado 80218. 1270-2-3

FOR RENT: A retiring physician wishes to rent his well equipped office to another physician or specialist. Large rural community including eight towns without physicians. Town, 7,000, good hospital. All sports. Ray S. Wycoff, M.D., 106 West 7th Street, Lexington, Nebraska 68850. 171-1-2B

G.P.—DESIRE PHYSICIAN WITH SURGICAL KNOWLEDGE. Located in heart of nation's best hunting, fishing and winter sports. Exceptional opportunity. Hospital will provide offices. Contact Steve Thomas, Administrator Star Valley Hospital; Afton, Wyoming 83110. 1070-12-6B

FOR SALE: Doctor's office building and equipment. Has been in use for 15 years for practice of Internal Medicine. 2,300 sq. ft., Lab and X-ray, large waiting room. Basement partly finished. Can be used by 1-3 M.D.'s or more. South Denver area. Doctor retiring. Reply to Box 171-2-2B, Rocky Mountain Medical Journal, 1809 E. 18th Avenue, Denver, Colorado 80218. 171-2-2B

SPECIALISTS NEEDED TO round out comprehensive health facilities in delightful medium-sized medically isolated great plains community. We have surgeon, radiologist, and pediatrician. Need internist, OB-GYN, ENT, eye, urologist and orthopedist. We need men willing to pioneer. Call collect or write B. S. Bordman, M.D., 336-7423, Lamar, Colorado 81052. 1070-1-ind.

COLORADO PERMANENTE MEDICAL GROUP desires Board-eligible or certified physicians in:
• **INTERNAL MEDICINE** • **PEDIATRICS** • **ENT**
• **GENERAL SURGERY** • **OB-GYN** • **OPHTHALMOLOGY**
Salary open. Liberal fringe benefits. Great climate. Write: W. L. Reimers, M.D., 2045 Franklin Street, Denver, Colorado 80205. 271-3-3B

THREE-YEAR OLD FULLY EQUIPPED, AIR CONDITIONED CLINIC BUILDING, 1800 sq. ft., for rent or sale. Ideal site for either office practice only or can use open staff hospitals in Brighton or Greeley. 45 miles from Denver on Interstate 80. Smog-free rural community, no drug problems, etc. Call 659-5687 after 6 p.m. 271-2-6B

NEW MEXICO . . . . University trained psychiatrist seeks position in Albuquerque or Santa Fe area. Reply Box 103, Mayo University of Minnesota Hospitals, Minneapolis, Minnesota 55455. 35 y/o. Available July 1, 1971. 271-1-2B

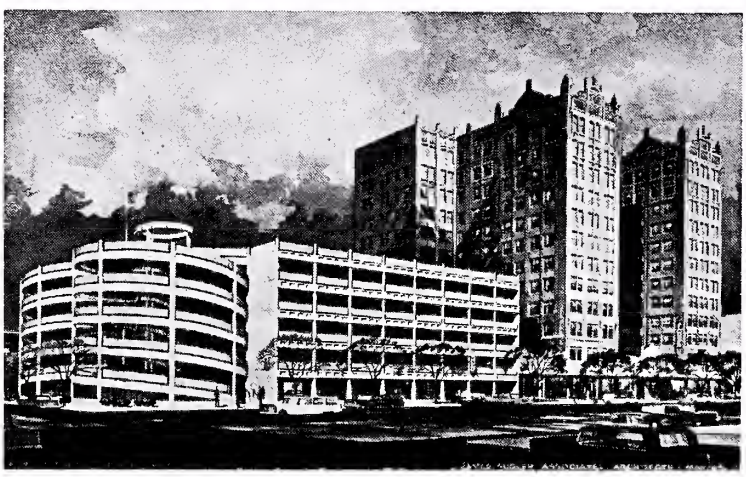
WANTED—G.P. (M.D.) or Surgeon willing to do general practice for very active surgical and medical practice in Rocky Mountain area. Climate moderate. Reply to Box 271-4-1, Rocky Mountain Medical Journal, 1809 E. 18th Avenue, Denver, Colorado 80218. 271-4-1

OPPORTUNITY: GENERAL SURGEON, prefer older man, for industrial work and assist in O.R. Salary open. No investment. Lots of free time to enjoy Las Vegas area. Contact Perry O. Williams, Henderson Clinic, 67 Lake Mead Drive, Henderson, Nevada 89015. (702) 565-8701. 1170-2-6B

EXPERIENCED PHYSICIAN seeks part time/full time position in E.R. and/or covering general practice in Albuquerque/Santa Fe area. Reply Box 103, Mayo, University of Minnesota Hospitals, Minneapolis, Minnesota 55455. Available July 1, 1971. 271-5-2B

CENTRALLY LOCATED

For the medical and dental professions



REPUBLIC BUILDING CORPORATION
1624 TREMONT PLACE, DENVER, COLORADO 80202
PHONE 534-5271

Here, in the heart of downtown Denver, the Republic Building is the best-known Medical-Dental Center in the Rocky Mountain West, complete with 24-hour operation, X-ray; pathological and dental laboratories, pharmacy, drug and supply stores.

With the completion of the new 500-car, self-service parking facility, the Republic Building—designed and operated for the medical and dental professions—offers the ultimate in patient-convenience and medical facilities.

Space is available. Ask for illustrated brochure.

SOCIETY OFFICERS

Colorado Medical Society

OFFICERS—1970-71—Terms of Officers and Committeemen expire at the Annual Session of the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: Marvin E. Johnson, Denver.

President-elect: Kenneth A. Platt, Westminster.

Vice President: William Y. Takahashi, Boulder.

Treasurer: Dwight C. Dawson, Colorado Springs.

Constitutional Secretary: James A. Henderson, Denver.

Delegates to the American Medical Association: Ray G. Witham, Craig, Dec. 31, 1972; Gatewood Milligan, Englewood, Dec. 31, 1971; Robert E. McCurdy, Denver, Dec. 31, 1971.

Alternate Delegates to the American Medical Association: Marcia Curry, Denver; R. Neil Chisholm, Denver; John M. Wood, Englewood.

Speaker, House of Delegates: Kenneth A. Kahn, Boulder.

Vice Speaker, House of Delegates: James A. Philpott, Denver,

Foundation Advocate: Charles B. Kingry, Denver.

Historian: Richard W. Whitehead, Denver.

Historian Emeritus: Bradford Murphey, Denver.

Scientific Editor for Colorado and Chairman of the Editorial Board, Rocky Mountain Medical Journal: Douglas W. Macomber, Denver.

Assistant Scientific Editor for Colorado, Rocky Mountain Medical Journal: Carl H. McLauthlin, Denver.

Executive Secretary: Mr. Donald G. Derry, 1809 E. 18th Avenue, Denver, Office Telephone (303) 399-1222.

Montana Medical Association

OFFICERS—1970-71—Terms of officers and committeemen expire at the annual meeting in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Meeting.

President: Richard L. Peterson, Hamilton.

President-elect: John Pfaff, Jr., Great Falls.

Vice President: Hollis K. Lefever, Lewistown.

Secretary-Treasurer: Robert P. Yost, Missoula.

Assistant Secretary-Treasurer: Wilfred S. Miller, Whitefish.

Delegate to the A.M.A.: Herbert T. Caraway, Billings.

Alternate Delegate to the A.M.A.: Mark B. Listerud, Wolf Point.

Executive Committee: Richard L. Peterson, Hamilton; John Pfaff, Jr., Great Falls; Hollis K. Lefever, Lewistown; Robert P. Yost, Missoula; Wilfred S. Miller, Whitefish; Herbert T. Caraway, Billings; Mark B. Listerud, Wolf Point; Oscar A. Swenson, Kalispell.

Scientific Editor, Rocky Mountain Medical Journal: Gerald A. Diettert, Missoula.

Associate Editor, Rocky Mountain Medical Journal: Mr. L. Russell Hegland, Billings.

Executive Secretary: Mr. L. Russell Hegland, 1236 North 28th St. (P.O. Box 1692), Billings 59103. Telephone, (406) 252-6673.

Nevada State Medical Association

OFFICERS—1970-71—Terms of officers and committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: V. E. Elliott, Fallon.

President-elect: William D. O'Gorman.

Secretary-Treasurer: John P. Sandle, Reno.

Delegate to A.M.A.: Leslie A. Moren, Elko.

Alternate Delegate to A.M.A.: Kenneth E. Turner, Las Vegas.

Immediate Past President: V. A. Salvadorini, Reno.

Scientific Editor for Nevada Rocky Mountain Medical Journal: Harry J. McKinnon, Las Vegas.

Assistant Scientific Editor for Nevada, Rocky Mountain Medical Journal: Wesley W. Hall, Reno.

Associate Editor, Rocky Mountain Medical Journal: Mr. Nelson B. Neff, Reno.

Executive Secretary: Mr. Nelson B. Neff, 3660 Baker Lane, Reno.

New Mexico Medical Society

OFFICERS—1970-71—Terms of officers and committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: Harry D. Ellis, Santa Fe.

President-Elect: Vaun T. Floyd, Albuquerque.

Vice President: Don R. Clark, Roswell.

Secretary-Treasurer: James R. Gay, Albuquerque.

Immediate Past President: Hugh B. Woodward, Albuquerque.

Speaker, House of Delegates: Ronald V. Dorn, Albuquerque.

Vice Speaker, House of Delegates: William J. Hossley, Deming.

Delegate to A.M.A.: Allan L. Haynes, Clovis.

Alternate Delegate to A.M.A.: Emmit M. Jennings, Roswell.

Scientific Editor for New Mexico, Rocky Mountain Medical Journal: Marcus J. Smith, Santa Fe.

Assistant Scientific Editor for New Mexico, Rocky Mountain Medical Journal: William S. Curran, Albuquerque.

Associate Editor for New Mexico, Rocky Mountain Medical Journal: Mr. Ralph R. Marshall, Albuquerque.

Executive Secretary: Mr. Ralph R. Marshall, 3010 Monte Vista Blvd., NE, Albuquerque; Telephone (505) 265-8494.

Assistant Executive Secretary: Mr. Thomas A. Bodnar, Albuquerque.

Utah State Medical Association

OFFICERS—1970-71—Terms of officers and committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: Russell M. Nelson, Salt Lake City.

President-Elect: Merrill C. Daines, Logan.

Past President: John H. Rupper, Provo.

Honorary President: A. M. Okelberry, Salt Lake City.

Secretary: Allan H. Barker, Salt Lake City.

Treasurer: Ralph C. Richards, Salt Lake City.

Delegates to A.M.A.: Drew M. Petersen, Ogden; Homer E. Smith, Salt Lake City.

Alternate Delegates to A.M.A.: Merrill C. Daines, Logan; Alan P. Macfarlane, Salt Lake City.

Speaker, House of Delegates: William R. Christensen, Granger.

Vice Speaker, House of Delegates: Wm. Knox Fitzpatrick, Salt Lake City.

Scientific Editor for Utah, Rocky Mountain Medical Journal: Alan E. Lindsay, Salt Lake City.

Associate Editor for Utah, Rocky Mountain Medical Journal:: Mr. Hoyt W. Brewster, Salt Lake City.

Executive Secretary: Mr. Hoyt W. Brewster, 42 South Fifth East St., Salt Lake City. Telephone (801) 355-7477.

Wyoming State Medical Society

OFFICERS—1970-71—Terms of officers and committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: Fenworth M. Downing, Sheridan.

President-elect: William G. Erickson, Lander.

Vice President: Donald F. Mahnke, Casper.

Secretary: Paul R. Yedinak, Rock Springs.

Treasurer: Donald B. Hunton, Cheyenne.

Delegate to A.M.A.: Harlan B. Anderson, Casper.

Alternate Delegate to A.M.A.: Thomas A. Nicholas, Buffalo.

Speaker of the House: Goode R. Cheatham, Jr., Casper.

Vice Speaker of the House: Norman R. Black, Cheyenne.

Scientific Editor for Wyoming, Rocky Mountain Medical Journal: Francis A. Barrett, Cheyenne.

Associate Editor for Wyoming, Rocky Mountain Medical Journal: Mr. Robert Smith, Cheyenne.

Executive Secretary: Mr. Robert Smith, P.O. Box 1367, Cheyenne, Wyoming 82001. Telephone (307) 632-5525.

ARTIFICIAL EYES

Plastic eyes and glass eyes specially made to fit the most difficult cases. An expert eye-maker is in our office at all times to give your patients the satisfaction they must have. In business since 1906.

Write or phone for full details.

DENVER OPTIC COMPANY
330 University Bldg. • 16th and Champa • 825-0229
Denver, Colorado 80202

Newton Optical Company

Catering to Medical Profession Patronage

309 16th Street
Denver 80202

GUILD Rx OPTICIANS

Telephone
534-8714

BRO[A]DMOOR yourselves

for the pure pleasure of it all!

Discover America's finest resort facilities, dining and accommodations, here within 5,000 acres of enjoyment at the gateway to the Colorado Rockies.

The BRO[A]DMOOR Colorado Springs, Colorado

THE EMORY JOHN BRADY HOSPITAL

401 Southgate Road COLORADO SPRINGS, COLORADO 80906 MElrose 4-8828

E. JAMES BRADY, M.D., *Medical Director*

CAMPBELL F. RICE, *Superintendent*

Francis A. O'Donnell, M.D.
Robert W. Davis, M.D.
Richard L. Conde, M.D.
Paul A. Draper, M.D.
Charles W. McClellan, M.D.
James E. Edwards, M.D.

For the care and treatment of Psychiatric disorders.
Individual and Group Psychotherapy and Somatic Therapies.
Occupational, diversional and outdoor activities.
X-ray, Clinical Laboratory and Electroencephalography.

INDEX TO ADVERTISERS

Abbott Laboratories
Erythrocin 4-6

Arch Laboratories
Dicarbosil 70

Berbert, George & Sons 79

Breon Laboratories, Inc.
Measurin 82

Broadmoor Hotel 91

Burroughs Wellcome & Co.
Empirin Compound 16

Campbell Soup Company
Soups 71

Denver Optic Company 91

Emory John Brady Hospital 91

H and R Block 93

Lederle Laboratories
Achrostatin 51

Lilly, Eli & Company
Ilosone Liquid 24

McNeil Laboratories
Parafon Forte 9

Merck, Sharp & Dohme Laboratories
Elavil 12-13

Mutual of Omaha 34

National Drug Company
Tepanil 17
Quinamm 18
Orenzyme 53
AVC 54

Newton Optical Co. 91

Picker Medical Products 42

Poythress, Wm. P. & Company
Synirin 8

Public Service Company of Colorado 85

Publishers Press, Inc./
Monitor Publications 68

Republic Building Corporation 90

Riker Laboratories
Norflex 11

Robins, A. H. & Company
Donnagel 19
Robitussin 20-21

Roche Laboratories
Menrium ..... Cover 2, Pg. 1
Librax 14-15
Efudex 22-23
Larobec 86-87
Librium ..... Cover IV

Searle, G. D. & Company
Lomotil ..... 94, Cover III

Smith, Kline & French Laboratories
Dyazide 10

Squibb, E. R. & Sons
Theragran 3

NOW!
GUARANTEE
We guarantee accurate preparation of every tax return. If we make any errors which cost you any penalty or interest, we will pay that penalty or interest.

Executive®

TAX SERVICE

from H·R BLOCK

BY APPOINTMENT ONLY

If you're a busy executive, chances are your time is better spent making money for your business. Our Executive Tax Service is designed to meet the special needs of your busy schedule. You receive **TWO** in-depth interviews—one before your return is prepared and one to review it afterwards. This unique service costs a bit more, but you'll feel it's well worth it.

For Appointment

744-2411

420 South Broadway

Denver, Colo.

When the stage is set for diarrhea...

Diarrhea . . . thwarted once again!

Time after time . . . just when plans seem sure to be shattered . . . the effective and prompt action of Lomotil comes to the rescue.

Here is an antidiarrheal with a performance record that few can challenge. A versatile actor, Lomotil stars in the treatment of diarrhea associated with gastroenteritis, irritable bowel, functional hypermotility, regional enteritis, malabsorption syndrome, drugs, acute infections, ulcerative colitis and food poisoning. In addition, it plays a major role in the control of intestinal transit time in patients with ileostomies and colostomies and of the diarrhea occurring after gastric surgery.

So . . . when Lomotil is in the cast (even in a supporting role), it's curtains for diarrhea!

Lomotil®

TABLETS/LIQUID

Each tablet and each 5 cc. of liquid contain:
Diphenoxylate hydrochloride. . . 2.5 mg.
(Warning: may be habit-forming)
Atropine sulfate . . . . . 0.025 mg.

Saves the Show

Warnings: Lomotil should be used with caution in patients taking barbiturates and, if not contraindicated, in patients with cirrhosis, advanced liver disease or impaired liver function.

Precautions: Lomotil is a federally exempt narcotic with theoretically possible addictive potential at high dosage; this is not ordinarily a clinical problem. Use Lomotil with considerable caution in patients receiving addicting drugs. Recommended dosages should not be exceeded, and medication should be

NEVADA ISSUE

Rocky Mountain Medical Journal

March 1971

VOLUME 68 • NUMBER 3

Library
College of Physicians
19 South 22nd Street
Philadelphia, Pennsylvania 19103

COLORADO • MONTANA • NEVADA • NEW MEXICO • UTAH • WYOMING

LIBRARY OF THE
COLLEGE OF PHYSICIANS
OF PHILADELPHIA
MAR 29 1971
8 F
MD

ROCHE

Widowed and alone
(with irritable colon syndrome)

Loss of a loved one. Loneliness. Job insecurity. The high correlation between stress factors in a patient's life and irritable colon syndrome is a matter of clinical experience.

Deal with the stress factor

Drug therapy for these patients might therefore be expected to do two things:
(1) allay anxiety associated with the irritable colon syndrome, and
(2) relax colonic spasm while checking hypermotility.
These are precisely the actions that define the effect of Librax.®

Librax: more than an antispasmodic

Librax is the only drug that delivers the tranquilizing action of Librium® (chlordiazepoxide HCl) plus the potent anticholinergic action of Quarzan® (clidinium Br). The anticholinergic helps control gastrointestinal hypermotility and spasm—the immediate cause of the patient's complaint. At the same time, the action of Librium helps ease the anxiety that may have triggered the G.I. distress in the first place.

1 or 2 capsules, 3 or 4 times daily

The dosage of Librax should be adjusted to achieve optimum individual response—within the range of 1 or 2 capsules, 3 or 4 times daily. In most cases, a satisfactory effect is obtained with 1 capsule before each meal and 2 at bedtime. Librax: #60, sig. 1 *a.c.* and 2 *h.s.*

Before prescribing, please consult complete product information, a summary which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic disorders in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (e.g., excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, i.e., dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

Roche Laboratories
Division of Hoffmann-La Roche, Inc.
Nutley, N.J. 07110

As adjunctive therapy Dual-action Librax®

Each capsule contains
5 mg chlordiazepoxide HCl
and 2.5 mg clidinium Br.

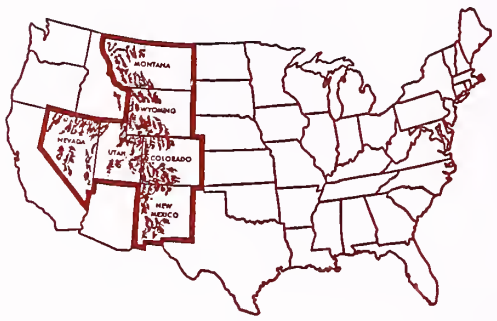
Calms anxiety, calms the G.I. tract

ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

MARCH 1971

Volume 68, Number 3



Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222 (area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204

Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

Address all manuscripts, organization and other news items relating to editorial content to appropriate state editor, see below.

Editorials

21 A Load to Share

21 Peer Review and Continuing Education

Articles

23 Multiple Hypothalamic Disorders Produced by a Suprasellar Germinoma — *Anton P. Sohn, MD, Reno, Nevada and Joseph G. Pittman, MD, San Francisco, Calif.*

27 Surgery of the Cervical Syndromes — *R. J. Morelli, MD, and E. W. Mack, MD, Reno, Nevada*

32 Neurologic Injury — *Ernest W. Mack, MD, Reno, Nevada*

39 Sequential Oral Contraception — *Charles W. Zumpft, MD, Las Vegas, Nevada*

43 Medical Conference from the University of New Mexico School of Medicine
The Fragmented Patient — *Edited by William S. Curran, MD, Albuquerque, New Mexico*

50 Pulmonary Nocardiosis — *Marshall G. Nims, MD, James L. Karel, MD, and Donald W. Fink, MD, Denver, Colorado*

60 Premature Atrial Contractions— — *Spencer B. King, III, MD, Edward R. Dorney, MD, and Fred W. Schoonmaker, MD, Denver, Colorado*

Organization

64 Colorado

64 Montana

Features

3 Publication Rules and Suggestions to Authors

14 Book Corner

16 Washington Scene

19 Meetings

57 Potpourri—*Compiled by Andrew M. Babey, MD, Las Cruces, New Mexico*

66 Obituaries

67 Medical School Notes

70 Want Ads

71 Index to Advertisers

OUR COVER PHOTO

The Truckee River flowing east through Reno, viewed from the west central park section of the city. Credit: "Doc Kaminski."

EDITORIAL BOARD

Colorado: Douglas W. Macomber, M.D., Scientific Editor, 1800 High St., Denver (Chairman of the Board); Carl H. McLauthlin, M.D., Assistant Scientific Editor, 510 Republic Bldg., Denver.

Montana: Gerald A. Diettert, M.D., Scientific Editor, 501 W. Broadway, P. O. Box 1307, Missoula, Montana 59801; L. Russell Hegland, Associate Editor, 1236 North 28th Street, Billings.

Nevada: Harry J. McKinnon, M.D., Scientific Editor, 3196 Maryland Pkwy. S., Las Vegas; Wesley W. Hall, M.D., Assistant Scientific Editor, 607 N. Arlington Ave., Reno; Nelson B. Neff, Associate Editor, 3660 Baker Lane, Reno.

New Mexico: Marcus J. Smith, M.D., Scientific Editor, Coronado Bldg., Santa Fe; William S. Curran, M.D., Assistant Scientific Editor, 920 Stanford NE, Albuquerque; Ralph R. Marshall, Associate Editor, 3010 Monte Vista Blvd., NE, Albuquerque.

Utah: Alan E. Lindsay, M.D., Scientific Edit 699 East South Temple, Salt Lake City; H W. Brewster, Associate Editor, 42 South F East Street, Salt Lake City.

Wyoming: Francis A. Barrett, M.D., Scient Editor, 1616 E. 19th St., Cheyenne; Rob Smith, Associate Editor, P. O. Box 1387, Ch enne.

Donald G. Derry, Managing Editor

Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations: It is the Official Journal of the Rocky Mountain Medical Conference and those medical societies who are represented on the Editorial Board listed above.

Advertising: National representative: State Journals West, 693 Su Street, San Francisco, California 94102.

Subscription: $7.00 per year in advance, postpaid in the United St and its possessions; single copy 60c plus postage. Subscription is cluded in medical society dues of sponsoring state medical organ tions.

Copyright: This Journal is copyright, 1971, by the Colorado Med Society. Requests for permission to reproduce anything from columns of this Journal should be addressed to the Journal Offe

Second class postage paid at Denver, Colorado

Publication rules and suggestions to authors

1. Who may submit articles. The Rocky Mountain Medical Journal ordinarily accepts only articles prepared by members of the state societies we serve and by guest speakers at their official meetings.

2. Method of preparation. All material for publication must be typewritten, double spaced, with liberal margins, using only one side of the paper, pages consecutively numbered, and preferably on standard 8½ x 11 white bond paper. Carbon copies are *not* acceptable.

Title (preferably short) and author's name, city and state must appear at the top of the first page. Second and subsequent pages should be identified with consecutive page numbers and author's surname. If physician authors possess more than one degree, the MD only is used. Lesser degrees of non-MD authors or co-authors may be used.

Please include beneath the title or at the top of the first page a brief paragraph stating what the article is designed to show and, therefore, why it should be read. This introductory feature is, in editorial parlance, called the "blurb"; it is printed in bold type.

3. Where to submit material. All copy must be sent to the editor for the state in which the material originates. Editors for each state, with their mailing addresses, are listed monthly on the Table of Contents page of the Journal.

4. Acceptance or rejection. The state editor will (1) tentatively accept the article, (2) return it to the author with suggestions for revision, or (3) reject it. He will edit and forward approved copy to the publication office in Denver for final editing and scheduling.

5. Order of publication. Ordinarily, articles will be published in the order received. Those whose value is seasonal, whose value would be lost if publication is delayed, or which reflect priority of original research, are given special consideration. State presidential addresses, programs, state society minutes, and timely organization announcements are given priority.

6. Length of articles. Scientific papers should be "boiled down" not to exceed ten pages of double-spaced typewritten standard 8½ x 11 inch sheets. Shorter papers are more acceptable to editors and readers, and earlier publication is probable. Every journal is in competition for the reader's time, and condensation is the order of the day. For this reason, and because of financial and space limitations, we request that copy be condensed to the greatest extent consistent with conveying the message.

7. Illustrations. A limited number of illustrations or "cuts," usually up to six, will ordinarily be accepted within our own publication budget if the editor believes they enhance the value of the article. Clear photos, simple diagrams or line drawings in black on white, printing rather than writing, reproduce well. Cuts should be mounted separately, and the paper or cardboard mounts should be the same size as that upon which the article is typed. Each should have its caption below: Fig. 1, Fig. 2, etc., with a short descriptive sentence. Authors will be billed our cost for excess above six cuts.

8. Tables. Tables should be simple, presenting only brief relevant data, amply spaced. They should be placed at the back of the manuscript on separate sheets. Each should have its number and title above: Table 1, Title; Table 2, Title; etc. Long, large, or complicated tables ordinarily are not acceptable.

9. Case reports. Case reports are popular with our readers. A brief introductory statement concerning the condition or disease, tells why the case is presented. The report follows with a separate heading, CASE REPORT or CASE 1, CASE 2, etc. Include only relevant, positive laboratory and other data. Names, initials, and numbers are unimportant; age, sex, and sometimes occupation are significant. Minimize dates; then make it month, date, year—as February 9, 1969; not 2/9/69. After the case presentation, review or sum it up under a heading such as Discussion, Comment, Summary or Conclusion.

10. Footnotes. Footnotes must be brief. One at the bottom of the first page should state the Society and date of presentation, and institutional origin, if any. Special titles or position of the author, acknowledgements, etc., will be added according to simplicity, editorial policy and discretion.

11. References. Reference lists rarely add to the value of an article for the majority of readers. We will make every effort to publish short reference lists, but long ones will be deleted. Incidentally, the proper heading is "References," not "Bibliography." The latter implies everything in the literature upon the subject. Make them uniform in style and brief, as: Jones, W. K.: Pyelonephritis in Infancy. JAMA 141:75. 1964.

12. Editorials. We would like to have more submitted by our State editors and the membership at large. Readers must get tired of thunder from publication headquarters in Denver; frankly, we do too! Speak out, and we'll sign your name, initials, or respect your request for anonymity, as you choose. If you don't like something we do or say, please let us in on it; we could even stand to hear about it if something happens to please you. A "Letter to the Editor" may help you get something off your mind. We're asking for it and we have a place to put it—in the Journal, that is!

13. Proofs. Galley proofs are submitted to the author, and prompt return is essential. Authors should correct typographical, grammatical, or rhetorical errors, but do not reinsert or rewrite sentences, paragraphs, tables, etc., which an editor may have deleted, condensed, or paraphrased. When an article reaches the galley-proof stage, the author may NOT re-edit his article; that is the privilege of the Journal's editors.

14. Reprints. Most authors desire reprints. Our printing firm provides them on a non-profit basis. They MUST be ordered when the author submits his corrected proof.

15. Our Journal is copyrighted. We and most state and regional journals owned by state medical societies have granted each other continuing copyright permission to copy or quote with proper credit. Copyright permission is not granted to commercial or privately owned publications.

After the crisis...

Empirin® Compound with Codeine, No.3 or No.4

Overpowers pain

Each tablet contains: aspirin gr. 3½, phenacetin gr. 2½, caffeine gr. ½.
No. 3 contains codeine phosphate* (32.4 mg.) gr. ½.
No. 4 contains codeine phosphate* (64.8 mg.) gr. 1.
*(Warning—may be habit forming.)

B. W. Co. narcotic products are Class "B", and as such are available on oral prescription, where State law permits.

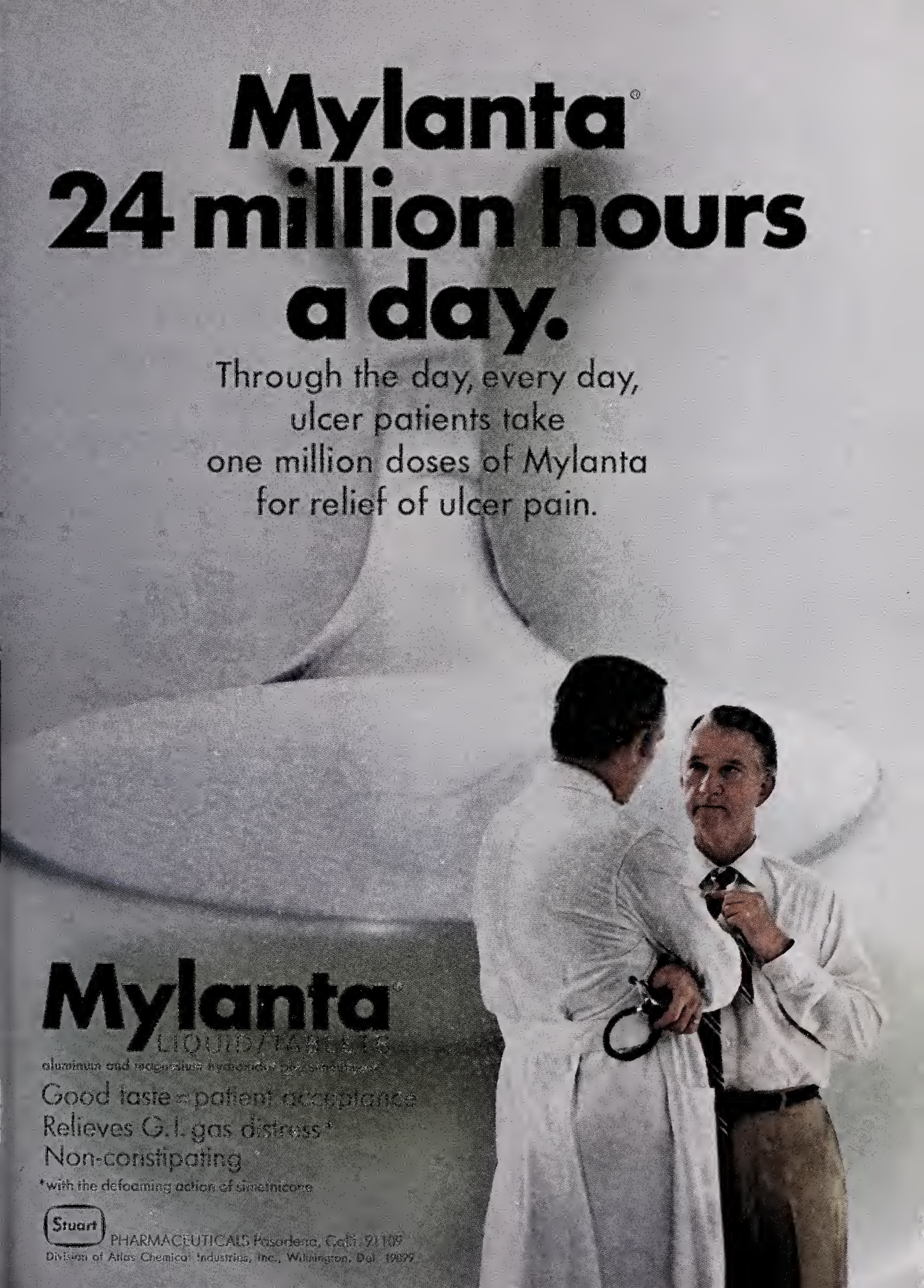
Complete literature available on request from Professional Services Dept. PML.

Wellcome

Burroughs Wellcome Co.
Research Triangle Park
North Carolina 27709

Mylanta®
24 million hours a day.

Through the day, every day,
ulcer patients take
one million doses of Mylanta
for relief of ulcer pain.



Mylanta®
LIQUID/TABLETS

aluminum and magnesium hydroxides* plus simethicone

Good taste = patient acceptance
Relieves G.I. gas distress*
Non-constipating

*with the defoaming action of simethicone

Stuart PHARMACEUTICALS Pasadena, Calif. 91109
Division of Atlas Chemical Industries, Inc., Wilmington, Del. 19899

THE MUSCLE RELAXANT THAT DOES WHAT'S EXPECTED

AND LESS

Some skeletal muscle relaxants cause generalized muscle weakness. Not Norflex. Some require dosages as high as eight tablets a day for effective relief. Norflex relaxes only the muscles in spasm on one tablet b.i.d. Norflex checks pain. Reduces rigidity. Restores mobility. Has less side effects too. So Norflex does what's expected. And does it with less inconvenience.

Norflex®
(ORPHENADRINE CITRATE)
1 TABLET (100 mg.) B.I.D.

Indications: Acute spasm of voluntary muscles, regardless of location; especially post-traumatic, discogenic, and tension spasms.
Dosage: Two tablets per day for adults, regardless of weight or sex; one in the morning and one in the evening.
Contraindications: Contraindications for Norflex are due to the anticholinergic action of orphenadrine. Norflex should not be used in patients with glaucoma, pyloric or duodenal obstruction, stenosing peptic ulcers, prostatic hypertrophy or obstruction at the bladder neck, cardiospasm (megaesophagus) and myasthenia gravis. It should be used with caution in patients with tachycardia.
Since mental confusion, anxiety and tremors have been reported in patients receiving orphenadrine and propoxyphene concurrently, it is recommended that Norflex not be given in combination with propoxyphene (Darvon®).
Side Effects: Side effects of Norflex (orphenadrine citrate) are mainly due to the mild anticholinergic action of orphenadrine, and are usually associated with higher dosage. Dryness of the mouth is the first side effect to appear. When the daily dose is increased, possible side actions include: tachycardia, palpitation, urinary hesitancy or retention, blurred vision, dilatation of the pupil, increased ocular tension, weakness, nausea, vomiting, headache, dizziness, constipation, drowsiness and, rarely, urticaria and other dermatoses. Infrequently, an elderly patient may experience some degree of mental confusion. These mild side effects can usually be eliminated by reduction in dosage. Two cases of aplastic anemia associated with the use of Norflex tablets have been reported. No causal relationship has been established.
For full information, see Package Insert or P.D.R.

Riker Laboratories, Inc. SUBSIDIARY OF 3M COMPANY
NORTHRIDGE, CALIFORNIA 91324
Sponsor of Riker-Service—The Complimentary Classified Service for Physicians

Multivitamins with pyridoxine can impair levodopa therapy

Your patient with Parkinson's disease and syndrome may be taking a nonprescription multivitamin containing B_6.
Vitamin B_6 reportedly reduces the benefits of levodopa, and may lead to discontinuance of therapy because of apparent ineffectiveness.

Larobec provides needed nutritional support without pyridoxine (vitamin B_6)...and helps ensure that your levodopa therapy is not impaired by self-medication with a pyridoxine-containing multivitamin preparation.

The "incomplete" B-complex

Larobec[T.M.]
TABLETS

High-potency nutritional support under prescription control

Complete Prescribing Information:
Each Larobec tablet contains:

Thiamine mononitrate (vitamin B_1)	15 mg
Riboflavin (vitamin B_2)	15 mg
Niacinamide	100 mg
Calcium pantothenate	20 mg
Cyanocobalamin (vitamin B_{12})	5 mcg
Folic acid	0.5 mg
Ascorbic acid (vitamin C)	500 mg

Description: For prophylactic or therapeutic nutritional supplementation concomitant with levodopa therapy in patients with Parkinson's disease and syndrome, Larobec provides high potency dosages of the major B-complex vitamins, without pyridoxine (vitamin B_6) which has been reported[1,2] to reduce the clinical benefits of levodopa therapy. B-complex vitamins are essential in the anabolism of carbohydrate and protein and in hematopoiesis. Larobec also contains therapeutic quantities of ascorbic acid, a substance involved in intracellular reactions such as tissue repair and collagen formation.
Indications: Larobec is indicated for supportive nutritional supplementation when a water-soluble vitamin formula (without pyridoxine) is required prophylactically or therapeutically in patients under treatment with levodopa.
Warning: Administration of vitamin B_6 may be required if signs of pyridoxine deficiency develop. Larobec is not intended for treatment of pernicious anemia or other primary or secondary anemias. Neurologic involvement may develop or progress, despite temporary remission of anemia, in patients with pernicious anemia who receive more than 0.1 mg of folic acid per day and who are inadequately treated with vitamin B_{12}.
Dosage and Administration: One or two tablets daily, as indicated by clinical need.
How Supplied: Orange-colored, capsule-shaped tablets, imprinted Roche 73; bottles of 100.
References:
1. Duvoisin, R. C., *et al.: Trans. Amer. Neurol. Assoc., 94*:81, 1969. 2. Cotzias, G. C.: *J.A.M.A., 210*:1255, 1969.

ROCHE
Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

ALLERGIC
TO
PENICILLIN

Safety isn't everything in an antibiotic.

Until you need it.

Such as the time when a penicillin-sensitive patient presents the potential for a severe allergic reaction.

Or the patient has impaired kidney function.

Or when age may make tooth staining a matter of consideration.

There is no guarantee of safety—even with Erythrocin.

Mild allergic reactions, abdominal discomfort and rare monilial overgrowth may occur. But serious reactions are extremely infrequent. And after 18 years, there are no known toxic effects on vital organs, bone, blood, nerves or teeth.

We'll ask *you* the question. Have you ever seen a serious reaction with Erythrocin? 103305

ERYTHROCIN®

ERYTHROMYCIN, ABBOTT

The potency you need– the safety you want

See next page for brief summary, listing indicated organisms, precautions, etc.

Erythrocin®

(ERYTHROMYCIN, ABBOTT)

Brief Summary

Indications

Erythrocin is indicated against gram-positive cocci — staphylococci (most strains), pneumococci and streptococci (including enterococci). Active against other pathogens, such as *Corynebacterium, Hemophilus, Clostridium, Neisseria,* and *Treponema pallidum,* the agents causing trachoma and lymphogranuloma venereum and primary atypical pneumonia caused by *Mycoplasma pneumoniae* (Eaton agent). Establish susceptibility of pathogenic organism when practical. Maintain therapeutic levels for ten days in the treatment of streptococcal infections to help prevent rheumatic fever and glomerulonephritis. Also consider local measures or surgery whenever indicated.

Contraindications

Known hypersensitivity to erythromycin. I.M. preparation also contraindicated in patients hypersensitive to the "caine" type of local anesthetics.

Precautions, Side Effects

Occasionally abdominal discomfort, cramping, nausea or vomiting may occur; generally controlled by reduction of dosage. Mild allergic reactions, such as urticaria and other skin rashes, may occur. Serious allergic reactions have been extremely infrequent; if hypersensitivity is encountered consider appropriate countermeasures, e. g., epinephrine, steroids, etc., and withdraw drug. The rare possibility of overgrowth of nonsusceptible organisms should be kept in mind; if it occurs withdraw drug and institute appropriate treatment. Local venous discomfort, generally mild, may occur with I. V. administration. I.M. preparation is suitable for deep intramuscular administration only; restrict use in children with small muscle mass. A mild transient local discomfort sometimes occurs following rectal insertion of Erythrocin Suppositories; discontinue if significant discomfort persists.

Administration and Dosage

I. ORAL: In adults with mild to moderate infections caused by readily-susceptible organisms 1.0 Gm. daily; more severe infections or those caused by less susceptible organisms 2.0 Grams daily; unusually severe infections up to 4 or more Gm./day. Daily dose in children is 15 to 25 mg./lb./day depending upon severity of infection. Daily dose should be administered in divided doses at 4-to-6 hour intervals. Continue treatment for at least 48 hours after symptoms have subsided and temperature has returned to normal. In fulminating or life-threatening infections, a parenteral form of erythromycin is preferred.

II. PARENTERAL: Intravenous administration may be continuous or intermittent (6 to 8 hour intervals); 1 to 4 Gm. daily in adults; 15 to 25 mg./lb./day in children, depending upon severity of infection. Recommended I.M. dose is 100 mg. (2 ml.) for adults, 50 mg. (1 ml.) for children 30 lbs. or more and 1.4 to 1.8 mg./lb. in smaller children. Injections are usually given at 6 to 8 hour intervals; may be given at 4 to 6 hour intervals for severe infections.

III. RECTAL: Following therapeutic doses are recommended in children: to 20 lbs., 1-125 mg. suppository every 8 hours; 20 to 40 lbs., 1-125 mg. suppository every 6 hours.

Change to oral therapy as soon as practicable.

103305

ABBOTT

Picture of low back pain

treated with Parafon Forte® TABLETS

Paraflex® (chlorzoxazone)* 250 mg.
Tylenol® (acetaminophen) 300 mg.

Parafon Forte tablets help to relieve pain, restore mobility... stop pain-spasm feedback

Here is why. PARAFON FORTE provides:

nonsalicylate analgesic equal to aspirin for relief of pain,[1,2] yet unlikely to cause the gastric irritation[2,3] or increased bleeding time[4] associated with aspirin therapy.

and a skeletal muscle relaxant shown in extensive clinical studies to be useful in a variety of low back disorders[5-7] ...but which is not an antihistamine or tranquilizer derivative and is unlikely to produce a tranquilizing or sedative effect.[8]

Prescribe PARAFON FORTE for effective spasmolysis and analgesia in acute sprains, strains and myalgias of the lower back, including acute exacerbations of chronic conditions. Your patients will appreciate the restored comfort and freedom of movement it usually provides.

Contraindications: Sensitivity to either component. ***Warnings:*** *Usage in Pregnancy*—Use in woman of child-bearing potential only when potential benefits outweigh possible risks. ***Precautions:*** Exercise caution in patients with known allergies or history of drug allergies. If a sensitivity reaction or signs or symptoms suggestive of liver dysfunction are observed, the drug should be stopped. ***Adverse Reactions:*** Occasionally, drowsiness, dizziness, lightheadedness, malaise, overstimulation or gastrointestinal disturbances may be noted; rarely, allergic-type skin rashes, petechiae, ecchymoses, angioneurotic edema or anaphylactic reactions. In rare instances, *Paraflex* (chlorzoxazone) may possibly have been associated with gastrointestinal bleeding. While *Paraflex* (chlorzoxazone) and chlorzoxazone-containing products have been suspected as being the cause of hepatic toxicity in approximately eighteen patients, it was not possible to state that the dysfunction was or was not drug induced. ***Usual Adult Dosage:*** Two tablets q.i.d. ***Supplied:*** Scored, light green tablets, imprinted "McNEIL" —bottles of 100.

References: **1.** Batterman, R. C., and Grossman, A. J.: Fed. Proc. *14*:316, 1955. **2.** Goodman, L. S., and Gilman, A., ed.: The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970. **3.** Vickers, F. N.: Gastroint. Endosc. *14*:94, 1967. **4.** Mielke, C. H., Jr., and Britten, A. F. H.: New Engl. J. Med. *282*:1270, 1970 (Corresp.). **5.** Kestler, O. C., and Gyurik, J.: Industr. Med. Surg. *21*:372, 1962. **6.** Forster, S., et al.: Amer. J. Orthop. *2*:285, 1960. **7.** Data on file, McNeil Laboratories, Inc. **8.** Friend, D. G.: Clin. Pharmacol. Ther. *5*:871, 1964.

*U.S. PATENT NO. 2,895,877

McNEIL LABORATORIES, INC., FT. WASHINGTON, PA. 19034

McNEIL

Efudex®
(fluorouracil)
cream/solution

In the treatment of solar/actinic keratoses—
An alternative to cold, fire and steel

2/23/68
Before treatment with 5% 5-FU cream. Patient R. G., 78 years old, shows extensive skin changes due to weathering and severe solar/actinic keratoses.

3/26/68
Following one month of therapy. Intense erythematous reaction is seen at sites of keratoses. Normal skin has not reacted. Some areas which had reacted initially have undergone healing despite continued topical application of 5% 5-FU.

6/11/68
Ten weeks after discontinuance of therapy. All areas have healed completely. Residual mild erythema remains in some areas. This patient also had seborrheic keratoses which, as expected, have not reacted. There is no evidence of residual lesions or recurrences.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

An alternative to conventional therapy

Efudex (fluorouracil) offers the physician a topical alternative to cryosurgery, electrodesiccation and cold-knife surgery in the treatment of solar/actinic keratoses. It is effective, comparatively inexpensive and especially well suited for treatment of these multiple lesions. Important, too, is the highly desirable cosmetic result. Clinical experience demonstrates that treatment with Efudex results in an extremely low incidence of scarring.*

Highly effective

In clinical trials, depending on the dosage form and strength used, complete involution occurred in 77 to 88 per cent of lesions following treatment. The rate of recurrence was low, ranging from 1.7 to 5.6 per cent up to a year after completion of therapy. When new lesions appeared, repeated courses of Efudex therapy proved effective.*

Predictable therapeutic response

Two to four weeks constitutes a typical course of Efudex therapy. The response is usually characteristic and predictable. After three or four days of treatment, erythema begins to appear in the area of keratoses. This is followed by an intense inflammatory response, scaling and occasionally moderate tenderness or pain. The height of the inflammatory reaction generally occurs two weeks after the start of therapy, and then begins to subside as treatment is stopped. Within two weeks of discontinuing medication, the inflammation is usually gone. A mild erythema may remain for two or three months before gradually receding. Since this response is so predictable, lesions which do not respond should be biopsied.

Two strengths—two dosage forms

Efudex is available as a 2% or 5% solution or as a 5% cream. It is applied twice daily by the patient with a nonmetal applicator or suitable glove.

Before prescribing Efudex, however, two important considerations: First, please consult the complete prescribing information for precautions, warnings and adverse reactions. Second, advise the patient that treated lesions should respond with the characteristic but transient inflammation. A positive sign that Efudex is working for them.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Efudex Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)-aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Efudex Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing-cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

new Efudex® (fluorouracil) cream/solution

*Data on file, Hoffmann-La Roche Inc., Nutley, New Jersey.

THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

Biochemistry of Brain and Behavior: Edited by Robert E. Bowman and Surinder P. Datta. New York, 1970, Plenum. 364 p. Price: $14.00

Cancer; Diagnosis, Treatment and Prognosis: By Lauren V. Ackerman and Juan A. del Regato. 4th ed. St. Louis, 1970, Mosby. 1049 p. Price: $39.50.

Clinical Psychiatry: By Eliot Slater and Martin Roth. 3rd ed. Baltimore, 1969, Williams and Wilkins. 904 p. Price: $22.00.

Doctor's Shorthand: By Frank Cole. Philadelphia, 1970, Saunders, 179 p. Price: Not Set.

Legal Medicine Annual: Edited by Cyril H. Wecht. New York, 1970, Appleton-Century-Crofts. 443 p. Price: $12.00.

Men, Stress and Vietnam: By Peter G. Bourne. Boston, 1970, Little, Brown. 233 p. Price: Not Set.

Operative Surgery, v. 12: By Charles Rob and Rodney Smith. Philadelphia, 1970, Lippincott. 400 p. Price: Price included in set.

Pain and The Neurosurgeon; A Forty-Year Experience: By James C. White and William H. Sweet. Springfield, Ill., 1969, Thomas. 1000 p. Price: $37.00.

Principles of Clinical Electrocardiography: By Mervin J. Goldman. 7th ed. Los Altos, California, 1970, Lange. 400 p. Price: $7.00.

Progress in Allergy, v. 14: Edited by P. Kallos and B. H. Waksman. New York, 1970, S. Karger, 339 p. Price: Not Set.

Psychoanalytic Study of The Child, v. 25: Edited by Ruth S. Eissler and others. New York, 1970, International Universities Press. 543 p. Price: $12.00.

Repair of Hernias: By Mark M. Ravitch. Chicago, 1970, Yearbook Medical Publ. 189 p. Price: Not Set.

Surgery of The Breast: By Harry W. Southwick and others. Chicago, 1970, Yearbook Medical Publ. 229 p. Price: $9.50.

Surgery of The Chest: By Julian Johnson, Horace Mac Vaugh and John A. Waldhausen. 4th ed. Chicago, 1970, Yearbook Medical Publishers, 428 p. Price: $10.50.

Surgery of The Head and Neck: By Robert Wise and Harvey W. Baker. Chicago, 1970, Yearbook Medical Publishers. 379 p. Price: $11.00.

Surgical Anatomy: By Barry J. Anson and Chester B. McVay. 5th ed. Philadelphia, 1971, Saunders. 2 vols. Price: $40.50.

Surgical Gynecology: By J. P. Greenhill. 4th ed. Chicago, 1969, Yearbook Medical Publishers. 403 p. Price: $10.50.

Surgical Urology: By R. H. Flocks and David A. Culp. 3rd ed. Chicago, 1967, Yearbook Medical Publishers. 510 p. Price: $12.50.

Treatment of Schizophrenia: By Philip R. A. May. New York, 1968, Science House. 352 p. Price: $12.50.

Upper Gastrointestinal Hemorrhage: By Eddy D. Palmer. Springfield, Ill., 1970, Thomas. 410 p. Price: Review.

Violence and The Brain: By Vernon H. Mark and Frank R. Ervin. New York, 1970, Harper & Row Publishers. 170 p. Price: Not Set.

Book Review

Emergency Care and Transportation of the Sick and Injured. The American Academy of Orthopaedic Surgeons has published a standard textbook for training of emergency medical technicians. The 320-page volume is designed for use by both student and teacher. It is authoritatively written by more than 100 contributors and was compiled by members of the Academy's Committee on Injuries.

The publication contains 58 chapters and over 200 illustrations, many in color, detailing the practical application of emergency care and rescue technics. The reader is given a working knowledge of essentially every emergency subject including fractures, burns, poisons, heart attacks, strokes, explosions, record keeping, vehicle maintenance, and legal responsibilities.

The book is intended for use by emergency medical technicians including ambulance operators, drivers and attendants, as well as nurses, police officers, firemen, rescue squad members, safety engineers, and all those responsible for first aid to the public. In addition, the book is written in a style to make it a ready reference for home use.

The Academy textbook will help implement the training of emergency technicians recommended by the Committee on Emergency Medical Services of the National Academy of Sciences—National Research Council. It will serve as the primary student textbook for the U. S. Department of Transportation basic training program for all ambulance personnel. This program guides the fifty states in their compliance with the 1966 Highway Safety Act requiring certification standards for emergency vehicles and emergency personnel training.

The volume is available at $4.95 prepaid per copy from the American Academy of Orthopaedic Surgeons, 430 North Michigan Avenue, Chicago, Illinois 60611.

ARTIFICIAL EYES

Plastic eyes and glass eyes specially made to fit the most difficult cases. An expert eye-maker is in our office at all times to give your patients the satisfaction they must have. In business since 1906.

Write or phone for full details.

DENVER OPTIC COMPANY

330 University Bldg. • 16th and Champa • 825-0229

Denver, Colorado 80202

Intramerican Cardiology Congress Sets Oct. 1 As Abstracts Deadline

October 1, 1971 has been set as the deadline for receipt of abstracts of papers intended for presentation at the Ninth Interamerican Congress of Cardiology, being held in San Francisco, Calif., from April 23 to 29, 1972. The meeting is sponsored by the Interamerican Society of Cardiology and is being hosted by the American Heart Association with the cooperation of the California and San Francisco Heart Associations.

Chief objectives of the Interamerican Congress are the presentation of new and important educational and research material and in interchange of ideas by cardiologists in the Western Hemisphere. Simultaneous Spanish-English translation will be featured, thus allowing presentations to be made in their original form.

The Interamerican Congress of Cardiology was founded in 1946 and the first meeting was held that year in Mexico City. Since then, the Congress has been held at four-year intervals in various parts of North and South America, including Peru and Canada.

Some 2,000 physicians and scientists are expected to participate in the Congress sessions, visit at least nine important cardiovascular teaching centers and hospitals, and attend two and three-day courses conducted by leading professors in cardiology.

Official forms to submit abstracts of papers and registration and hotel reservation forms may be obtained from the Department of Councils and International Program, American Heart Association, 44 E. 23rd Street, New York, N.Y. 10010.

National Library of Medicine

A list of proposed rules to cover the award of grants for basic medical library resources—one of seven grant programs authorized under the Medical Library Assistance Extension Act of 1970—has been published in the *Federal Register*. The Medical Library Assistance Extension Act, signed into law by President Nixon on March 13, 1970, provides grant programs designed to improve medical communications throughout the country.

The proposed regulations will aid in implementing the new programs authorized by the Medical Library Assistance Extension Act of 1970. Under the Act, support will be available to aid institutions in establishing as well as expanding and improving medical libraries. The proposed regulations also eliminate the previous formula basis of determining grant awards, replacing it with the requirement that grantees provide adequate continuing support for their libraries from non-Federal funds both during and after the period of the award.

Public and private agencies, organizations, and institutions, as well as individuals, are invited to participate in the formulation of these regulations. Comments should be forwarded in triplicate within 30 days to the Director, National Institutes of Health, 9000 Rockville Pike, Bethesda, Maryland 20014, for consideration before the regulations are approved in final form for publication.

Mountain Bell Telephone Directory Listing Changes

The Keogh Act which permits individuals to incorporate for the purpose of establishing non-taxable pension funds has resulted in many requests for changes in telephone directory listings for physicians. As a result, Mountain Bell is making some policy changes in listings for physicians and medical facilities in their telephone directories.

Their proposal was discussed in detail with Dr. Marvin E. Johnson, President of the Colorado Medical Society, who referred the policy to the Judicial Council. The Council ruled that the methods and plans proposed are "entirely ethical and proper for use of physicians." These recommendations were accepted by the Colorado Medical Society Board of Trustees at their December 19, 1970 meeting.

The purpose of the change, according to Mountain Bell, is to maintain and protect a professional and dignified image of the medical profession. It will have no effect on listings for individual physicians but is intended to clarify the method of listings for group, associate or corporate practices.

All physicians will be advised of the policy by telephone company representatives before their next directory is published. Mountain Bell operates in Arizona, Colorado, Idaho, Montana, New Mexico, Utah, Wyoming, and El Paso County, Texas.

THE WASHINGTON SCENE

A monthly news summary from the nation's Capitol by the Washington Office of the AMA.

The Nixon Administration asked Congress for tighter government control over any peer review setup for Medicare and Medicaid than would be provided by the so-called Bennett amendment approved by the Senate last year.

Elliot L. Richardson, secretary of Health, Education and Welfare, told the House Ways and Means Committee:

"We agree with the objective of assuring an expanded role for the medical profession in peer review activities and recognize the need for improvement of utilization review procedures. However, certain modifications in the senate provisions would be desirable. For example, we do not think that the secretary of HEW should be required to use medical-society sponsored groups in situations where there may be a highly qualified review organization in the area that has already demonstrated its ability to perform well. We also favor giving the secretary some greater flexibility to permit, through regulations, variations in the structure and patterns of operation of peer review groups."

Richardson was testifying on H.R. 1 of the 92nd Congress. The social security measure includes provisions for peer review and other changes in Medicare and Medicaid. Both Chambers of Congress passed such legislation last year but the Senate added so many amendments to the House-passed bill that congressional leaders decided it would be futile for a House-Senate conference committee to try to reconcile the differences. The House committee made the legislation the first order of business this year and the legislation was expected to get through Congress within a few months.

Richardson again asked for authority to use health maintenance organization (HMO's), or prepaid group practice, for the government programs. He also renewed a request for authority to limit physicians' fees and other provider costs under Medicare. Both provisions were approved in varying forms by the House and Senate last year, and consequently it appeared likely that some versions of them, along with peer review, would become law in the first half of this year.

Richardson said HMO's would mean progress toward "our goal of emphasizing preventive medical care." He added:

"We believe that HMO's can help solve many of the problems facing the health care system today—the uncontrolled rise in health care costs, over-utilization, particularly of high cost services, disorganization, improper allocation of resources, inadequate emphasis on preventive care and inefficient use of available health manpower. In the long run, the encouragement of HMO's may be the most important step we can take to stimulate the restructuring of the health delivery system. We hope that health maintenance organizations, and their use by beneficiaries, will expand greatly in the future, and we believe that there can be significant long-run savings in program costs due to the HMO option."

Concerning the proposed limitation on increases in physicians' fees, Richardson said:

"Another major change relating to Medicare reimbursement that is recommended by the Administration is one which would limit Medicare's recognition of prevailing charge increases to rates that economic data indicate would be fair to all concerned. We believe that if recognition of fee increases is tied to appropriate economic indexes, this will help to assure that the recognition of such increases is appropriately related to developments in other pertinent sectors of the economy."

Administration sources said HEW later would seek authority for other economy measures to cut Medicare costs. These included:

—Reduction of the 60-day period of hospitalization during which beneficiaries pay relatively little.

—Increase the annual $50 deductible a beneficiary must pay toward his physician's fees under Part B.

—Tighten up on payments to nursing homes for custodial care.

The American Nursing Home Association already has withdrawn official support of the Medicare program for extended care and has urged its more than 7,000 nursing home members to reassess their participation.

"The tragic aspect of the Medicare program for extended care is that the Social Security Administration led America's senior citizens to believe that, if their physicians thought it necessary, they were entitled to 100 days of custodial care at government expense," David R. Mosher, ANHA president, said. "Subsequent rules and regulations issued by SSA have virtually ruled this out."

The girth control pill

Tepanil® Ten-tab®

(continuous release form)

(diethylpropion hydrochloride, N.F.)

When girth gets out of control, TEPANIL can provide sound upport for the weight control program you recommend. EPANIL reduces the appetite—patients enjoy food but eat ess. Weight loss is significant—gradual—yet there is a rela-vely low incidence of CNS stimulation.

ntroindications: Concurrently with MAO inhibitors, in patients hypersensitive to is drug; in emotionally unstable patients susceptible to drug abuse.

orning: Although generally safer than the amphetamines, use with great caution in atients with severe hypertension or severe cardiovascular disease. Do not use dur-g first trimester of pregnancy unless potential benefits outweigh potential risks.

dverse Reactions: Rarely severe enough to require discontinuation of therapy, un-easant symptoms with diethylpropion hydrochloride have been reported to occur relatively low incidence. As is characteristic of sympathomimetic agents, it may casionally cause CNS effects such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported. Sympathomimetic cardiovascular effects reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others. *Allergic phenomena* reported include such conditions as rash, urticaria, ecchymosis, and erythema. *Gastrointestinal effects* such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosage forms: TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL: One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

T-107/4/71/U S PATENT NO. 3,001,910

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Painful night leg cramps...

unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

One thing patients can sleep without, particularly patients with chronic disease conditions such as arthritis, diabetes or PVD, is painful night leg cramps. Although seldom the presenting complaint, night leg cramps can tie your patients up in painful knots. Now, just one tablet of QUINAMM at bedtime can usually bring an end to shattered sleep and needless suffering. Your patients will sleep restfully—gratefully—with QUINAMM, specific therapy to prevent painful night leg cramps.

Prescribing Information—Composition: Each white, beveled, compressed tablet contains: Quinine sulfate, 260 mg., Aminophylline, 195 mg. **Indications:** For the prevention and treatment of nocturnal and recumbency leg muscle cramps, including those associated with arthritis, diabetes, varicose veins, thrombophlebitis, arteriosclerosis and static foot deformities. **Contraindications:** QUINAMM is contraindicated in pregnancy because of its quinine content. **Precautions/Adverse Reactions:** Aminophylline may produce intestinal cramps in some instances, and quinine may produce symptoms of cinchonism, such as tinnitus, dizziness, and gastrointestinal disturbance. Discontinue use if ringing in the ears, deafness, skin rash, or visual disturbances occur. **Dosage:** One tablet upon retiring. Where necessary, dosage may be increased to one tablet following the evening meal and one tablet upon retiring. **Supplied:** Bottles of 100 and 500 tablets.

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Quinamm™
(quinine sulfate 260 mg., aminophylline 195 mg.)

Specific therapy for night leg cramps

Q103

MEETINGS

University of Colorado School of Medicine Postgraduate Medical Education Management and Care of Respiratory Insufficiency

Denver, Colorado

April 21-23, 1971

Clinical Dermatology

Denver, Colorado

April 29-May 1, 1971

General Practice Review

YMCA Conference Center, Estes Park, Colorado

June 21-26, 1971

Pediatrics

Aspen, Colorado

July 11-14, 1971

Internal Medicine

YMCA Conference Center, Estes Park, Colorado

July 20-24, 1971

Recent Advances in Rheumatic Diseases American College of Physicians

Estes Park, Colorado

July 26-29, 1971

For detailed programs and further information, write to: The Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado 80220.

Mountain States Regional Medical Program—Montana Coronary Care Symposium for Physicians

Missoula, Montana

March 21-25, 1971

Montana Medical Association 24th Interim Meeting

Holiday Motel, Helena, Montana

April 2-3, 1971

Montana Heart Association 14th Annual Postgraduate Conference for Physicians

Florence Hotel, Missoula, Montana

May 7-8, 1971

For further information, contact Judith Graham, MD, 1220 Central Avenue, Great Falls, Montana 59401.

1971 Meeting, New Mexico Ophthalmological Society

Santa Fe, New Mexico

July 8-10, 1971

Speakers—Robert Shaffer, MD on glaucoma and David O. Jesberg, MD on congenital and hereditary aspects of eye disease.

For further information write: New Mexico Ophthalmological Society, P.O. Box 37, Santa Fe, New Mexico 87501.

Third Allied Health Postgraduate Course In Diabetes

San Francisco, California

April 19-21, 1971

This Course is offered in response to the need to convey the most current knowledge and teaching technics to members of the health team who are concerned with instruction of diabetic patients and their families. It is directed in particular to nurses, nutritionists and dietitians. Fee for the Course is $50 for Members of the American Diabetes Association and $65 for nonmembers.

For additional information, write American Diabetes Association, Inc., 18 East 48th Street, New York, N. Y. 10017.

Eighth Annual Reserve Forces Medical Symposium

Shamrock Hilton Hotel, Houston, Texas

April 26-29, 1971

The Symposium, jointly sponsored by the Air National Guard and Air Force Reserve, will be held in conjunction with the 42nd Annual Scientific Meeting of the Aerospace Medical Association. Air Force Reserve medical unit commanders and chief nurses may attend in an official status. Other personnel in units and those holding Mobilization Assignments will be able to attend to earn training points only. Reservists and Guardsmen in units can get more detailed information from their unit commanders. Mobilization Augmentees should address inquiries to the major air command to which they are assigned.

Symposium on The Infant at Risk

The Jack Tar Hotel, San Francisco, California

May 26-29, 1971

For information concerning registration and the final program write Mr. Robert E. Trefry, Executive Director San Francisco Chapter, The National Foundation-March of Dimes, 111 Sutter Street, San Francisco, California 94104. Telephone: (415) 392-1867.

Not too little, not too much... but just right!

"Just right" amounts of Ilosone Liquid 250 can be dispensed easily from the pint bottle in *any* quantity you specify to meet your patients' precise needs—without regard to package size.

ready-mixed

Ilosone® Liquid 250

Erythromycin Estolate

(equivalent to 250 mg. of base per 5-ml. teaspoonful)

Additional information available to the profession on request.
Eli Lilly and Company
Indianapolis, Indiana 46206

Lilly

100204

A Load to Share

THE TIMES IN which we live may well go down in history as the age of uncontrolled population expansion, pollution, sexual freedom and drug abuse. Truly these problems are tremendous in their implications and probably defy supersedence by any of the others which confront us. There is, however, another facet of American life which has and will continue to receive extraordinary emphasis in the foreseeable future and which is manifest by the preoccupation of a large number of our professional and lay people with the *health care* of the *American people.*

The demands being placed upon *all* of the health professions have become staggering. With the present rate of population expansion, the current medical and allied health facilities will surely buckle under the demand. I personally cannot believe that even the expansion of our medical schools and other health training centers, as presently outlined, will be able to cope with the problem.

From time immemorial the medical profession has attempted to solve its own problems in its own way with little regard for what is or may be going on in the other health professions. Our track record in this regard is being viewed by politicians, welfare people and social reformers as rather dismal. Perhaps they are right, but in our defense I do not feel that the records of any of the other health groups are any more satisfying.

If we of the health professions are to meet the challenges being thrown at us, I feel it can only be done through closer cooperation between medical, nurse, dental and hospital societies. Other allied health personnel could be included as the program developed.

We in the Western states who are blessed with small populations can and should lead the way in such a movement. During my term of office as President of the Nevada State Medical Association I have been exploring the possibilities of joint or simultaneous meetings of the NSMA with the State Nurse's Association and the Nevada Hospital Association. Their representatives are most receptive and I am hopeful of working out a simultaneous meeting with the Nevada State Nurse's Association and the Nevada State Medical Association as early as 1972. With what degree of success and acceptance such a venture would be received is somewhat open to question at the moment, but I would encourage other states to begin exploring these possibilities.

Hopefully, an approach to health care through sharing of ideas, efforts and responsibilities can lead to an early and more successful answer to a problem which is threatening to crush the American system of medical care as we have known it.

V. E. Elliott, M.D.
President
Nevada State Medical Association

Peer Review and Continuing Education

THE CURRENT predictions are that peer review will become the law of the land for physicians. This may well be during this year of 1971. There are several reactions: "So what? We have had peer review in hospitals for years—just different name." "In the office—not in my office!" "Or they will never get it done."

My reaction is that we should try to turn peer review into something worthwhile and of benefit to the patient. The review process will develop and smooth out over a period of time. The huge problem is what to do after

some areas are identified where we need to improve. I have served on enough "police" committees to know that just raising hell with the physician does no good.

Continuing education is the answer. That is, education that can be continuing. What we have had in the past is not really continuing —there are large gaps in continuity of learning for all of us. We need to develop, at the state and local levels, systems of information. These systems should be available to the practitioner where he works and where he has time to learn—hospital, office and home. The information must be current, and it must be to the point. If peer review shows up my lack of differential diagnosis on anemia, it does my patients no good unless I can quickly refresh my memory. I may do this while smarting from the criticism. I must be able to do it later when I see a patient with anemia who needs a work-up, and at still another time when I have time to refresh my memory and do some indepth study. That would be continuing education.

Where would the informational systems come from? First there is the now available electronic capability, both computer and television. What is needed are a few learning centers in hospitals where the information would arrive. Secondly, the information is available. It is in many forms and it is in many libraries. It is in books, journals, papers, and professors' minds. Some of the monies for regional medical programs, comprehensive health planning, national library of medicine, etc. could be used to transmit information to the individual hospital.

Can we develop this kind of software? If the national television networks can put out the low grade material that is called entertainment and let Sesame Street win the honors, then I am sure that we could find some talented person to put out information for medical education—continuing medical education readily available.

Hugh C. Follmer, M.D.
Las Vegas, Nevada

Multiple hypothalamic disorders produced by a suprasellar germinoma*

Anton P. Sohn, MD, Reno, Nevada and
Joseph G. Pittman, MD, San Francisco, California
(Formerly of Reno, Nevada)

It is the purpose of this paper to review the functions of the hypothalamus and present an illustrative case.

SUPRASELLAR GERMINOMAS, or ectopic pinelomas, are an uncommon type of brain tumor of special interest to the clinician both because of the associated hypothalamic and endocrine disorders and because of the frequently excellent response to x-ray therapy.[1-3] Their proximity to the hypothalamus produces a typical neuroendocrine triad consisting of visual loss, diabetes insipidus and anterior pituitary insufficiency. An awareness of these endocrine abnormalities is important not only because of the need for adequate hormonal replacement but also because they may precede any neurological deficit and thus provide a clue to early diagnosis and therapy. In the following case report of a 13-year-old boy with suprasellar germinoma, multiple abnormalities of hypothalamic function were indicated by the occurrence of hyperphagia and obesity, diabetes insipidus, hypodipsia, unexplained pyrexia and anterior pituitary insufficiency. Moreover, there has been an excellent response to irradiation.

*Presented before the Nevada State Medical Association, August 27, 1970. From the Washoe Medical Center, Reno.

CASE REPORT

A 13-year-old white male was admitted to the hospital on March 19, 1968 because of loss of vision and headaches of six months duration. Growth and development had been normal until the Fall of 1967 when he developed polydipsia, polyuria, nocturia and hyperphagia. He shunned all physical activity, became sedentary and gained approximately 20 lb. over the ensuing six months but failed to grow in height.

He presented as an obese, pale, prepubital boy who was almost totally blind. His height was 58 inches and his weight 105 lbs. The pulse was 120, the blood pressure was 100/70 and the temperature 100.8°F. Adiposity was generalized. Body hair was sparse and there was no axillary or pubic hair. The skin was smooth and dry. Breasts were prominent but there was no palpable glandular tissue and no galactorrhea. The voice was soprano and the thyroid cartilage was small. The thyroid could not be felt. The testes were in the scrotal sacs and measured 1.5 x 1.0 x 1.0 cm. The phallus was that of a normal prepubital boy. Ocular examination revealed a quick convergent nystagmus resembling an esotropia and loss of upward gaze. Visual acuity in the left eye was 20/400; only light perception remained in the right eye. Visual fields showed bitemporal hemianopia. There was marked pallor of the optic discs. Skull x-rays showed a calcified, midline pineal. A radioiostope brain scan (^{99m}Te) and bilateral carotid arteriograms revealed no abnormalities. Ventriculograms demonstrated dilatation of the lateral ventricles. The third ventricle was poorly visualized

Temporary ventricular drainage was established through a burr hole in the left posterior parietal area. One week later an exploratory craniotomy was performed through a posterior parietal approach and permanent ventricular drainage was established by insertion of a Pudenz shunt. Exploration was carried to the depth of the mid-brain but no definite tumor mass was identified. The patient's headaches diminished

markedly but there was no return of vision. Polyuria was noted with daily urine outputs reaching 9,600 ml and the patient complained of thirst. These symptoms responded promptly to the administration of vasopressin tannate in oil.

The patient was discharged for further follow-up as an outpatient but failed to return. When readmitted 4½ months later he was markedly dehydrated, hypotensive and appeared moribund. Vision had further deteriorated and he was now blind in the right eye and able to perceive only light in the left. Lumbar puncture revealed clear fluid with normal pressures. The cerebrospinal fluid (CSF) protein was 190mg/100ml and the CSF contained 65 white cells of which 90 per cent were lymphocytes. After treatment with intravenous fluids, dexamethasone, vasopressin and antibiotics, an exploratory left frontal craniotomy was carried out. Marked atrophy of both optic nerves was found along with a tumor mass overlying the optic chiasm and extending posteriorly along the optic tracts. The location and extent of the tumor precluded any attempt at resection. Biopsy specimens show a typical histologic picture of suprasellar germinoma (Fig. 1). Post operatively the patient was maintained on cortisone, desiccated thyroid and vasopressin with marked improvement. He became more alert and cheerful and his appetite (see below) and strength improved. X-ray therapy to the suprasellar area was begun and he was discharged for completion of therapy as an outpatient.

Once again he was lost to follow-up for one month and on returning to the hospital was comatose, dehydrated, hypothermic and in shock.

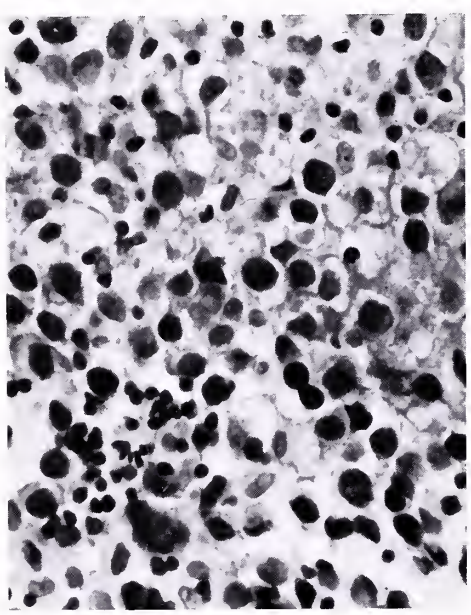


Fig. 1. Biopsy of tumor showing characteristic large spherical cells surrounded by small lymphocytes. Note resemblance to testicular seminoma and ovarian dysgerminoma. (Hematoxylin and Eosin, X350.).

The rectal temperature was below the lower limits of the ward thermometer (92°F). There were umbilicated vesicular lesions of varying ages scattered over the face, trunk and arms. Coarse rhonchi were heard in the lungs. The urine specific gravity was 1.006. Serum sodium was 174, chlorides 128, potassium 3.3 and carbon dioxide content 21 meq/liter. The blood urea nitrogen (BUN) was 41 and the blood glucose 169 mgs/100 ml. The blood count was normal except for a white cell count of 2,500. Chest x-ray showed diffuse, patchy infiltrates consistent with a viral pneumonitis. A diagnosis of varicella with severe combined anterior and posterior pituitary insufficiency was made. Vigorous therapy was begun with intravenous fluids, hydrocortisone, sodium L-thyroxine, vasopressin and whole blood transfusions. By the fifth day he had regained consciousness and by the seventh day the rectal temperature had risen to 98°F. The planned course of x-ray therapy was completed, a total of 2,450 rads (air dose) being delivered to each of three fields. After three months in the hospital he was discharged to a chronic care facility. At that time he was blind and unable to stand or walk without assistance because of a spastic weakness of the legs. However, he had no headaches and despite these handicaps was cheerful and optimistic. A report one year later indicated that he had become ambulatory and was doing well.

Neuroendocrine Observations

Endocrine studies revealed mild hypothyroidism; the PBI was 3.7 μg/100 ml and a ^{131}I-triiodothyronine resin uptake of 1.4 was within the hypothyroid range (normal 0.88 to 1.10). Baseline 24-hour urinary 17-ketogenic steroids (17-KGS) and 17-ketosteroids (17-KS) were 4.9 and 1.9 mg, respectively. Following the administration of metyrapone (750 mg orally every 4 hours for six doses) 24-hour urinary 17-KGS were 4.4 mg and 17-KS were 1.0 mg, an abnormal response indicating deficient ACTH reserve. Growth hormone and gonadotropins were not measured directly, but deficiencies of both were indicated on clinical grounds by cessation of linear growth and the total absence of sexual maturation. Antidiuretic hormone (ADH) deficiency was documented by marked polyuria with daily urine volumes between 6,000 and 9,000 ml, consistently dilute urine with specific gravities usually less than 1.005 despite hyperosmolality of the body fluids (serum sodium between 155 and 174 meq/liter), and a prompt response to vasopressin with reduction in the daily urine output to between 1,000 and 1,500 ml and a rise

in urine specific gravity to 1.030. Between episodes of severe dehydration there was no evidence of renal disease as indicated by a normal urinalysis, BUN and serum creatinine.

Polyuria was well controlled with vasopressin tannate in oil, five units every two to three days. On this regimen the urine output rarely exceeded 1,500 ml per day. During his third admission there were recurrent episodes of dehydration with hypotension, tachycardia, fever, obtundation, hypernatremia and azotemia despite what appeared to be adequate vasopressin replacement. The patient rarely complained of thirst even at times when marked hyperosmolality of his body fluids was documented by elevations of serum sodium to 155 meq/liter and greater. Accordingly, a diagnosis of impaired thirst mechanism was made and a minimum of 2,000 cc of fluids was given on a regular basis throughout the day. Vasopressin was continued and water intoxication was avoided by close observation of body weight, intake and output, urine specific gravity and serum sodium levels. Despite these measures there were additional episodes of unexplained pyrexia that could not be explained on the basis of dehydration or infection.

Hyperphagia disappeared after the patient's initial hospitalization and indeed his appetite became poor until replacement therapy with cortisone and thyroid was begun. His appetite then returned and after gaining approximately five lbs. weight stabilized around 110 lbs. He remained somewhat obese but hyperphagia did not recur during the year after his final discharge.

Comment

There is abundant exidence both from animal experimentation and from clinical observations that the hypothalamus plays a major role in the regulation of body temperature, food intake and energy balance, salt and water metabolism, cardiovascular responses and the release of adenohypophysial hormones.[4] However, it is somewhat difficult to make precise clinical correlations with specific hypothalamic lesions. As one investigator has put it, "The attempts to unravel a complex control system of such accuracy, situated in so small a region, have been analogous to, say, an attempt to investigate the function of a powerful computer using a voltmeter, a battery, a screwdriver and a hatchet."[4] While acknowledging these limitations, much progress has nevertheless been made toward understanding hypothalamic structure in terms of function, and such information provides insight into the physiological disorders produced by suprasellar germinomas.

Although uncommon manifestations of suprasellar germinoma, hyperphagia and obesity were early symptoms in the present case. It is probable that these symptoms resulted not from pituitary damage but from destruction of the so-called "satiety center" in the ventromedial hypothalamus. Bilateral lesions experimentally placed in the ventromedial hypothalamus cause hyperphagia and obesity while electrical stimulation of these same areas inhibits feeding. Stimulation of the more lateral hypothalamus produces feeding behaviour while lateral destructive lesions result in aphagia. These findings have led to the concept of a ventrolateral hypothalamic feeding center whose activity is modulated by a ventromedial satiety center. In the present case, the development of obesity was no doubt further encouraged by simultaneous reduction in physical activity due to failing vision. Disappearance of hyperphagia later in the course of his illness may have been due in part to the subsequent occurrence of anterior pituitary insufficiency which is known to cause a reduction in food intake. The sella turcia was normal and it is probable that adenohypophysial insufficiency was not caused by direct invasion of the pituitary but rather by a destructive lesion in the area of the median eminence. Unlike the neurophypophysial system, there are no neural connections between the hypothalamus and the anterior pituitary gland. However, there is now convincing evidence that nervous control of adenophypophysial function is exerted by polypeptide releasing factors that are synthesized in the medium eminence and carried to the anterior pituitary by way of the hypophysial portal venous system.

The hypothalamus is also an essential region for thermoregulatory activity. The recurrent episodes of unexplained pyrexia in this patient may well have represented faulty thermoregulation due to hypothalamic damage. However, thermoreceptive structures have been difficult to identify with precision and there appears to be great flexibility in the organization of the hypothalamus with respect to thermal regulation, permitting considerable functional repair after the production of experimental lesions. In this regard it is interesting to note that our patient had no further episodes of fever after x-ray therapy.

Diabetes insipidus is a well-known complication of hypothalamic disease. Despite its dramatic clinical manifestations, diabetes insipidus presents no serious threat to the otherwise normal patient with free access to water. However, any impairment in the normal thirst mechanism greatly complicates the management of fluid balance. There is the ever present risk of inducing water intoxication by simultaneously forcing fluids and administering vasopressin in an effort to avoid dehydration. In comparison with the clinical picture of ADH deficiency, disorders of thirst are usually more subtle and may go undetected unless specifically sought.[5,6] As with the regulation of food intake, there seems to be also a lateral drinking center and a ventromedial water satiety center within the hypothalamus, they may occur in the absence of diabetes insipidus. Restoration of a normal thirst mechanism in patients with hypothalamic tumors may occur after radiation therapy.

Diagnosis

The diagnosis of suprasellar germinoma can be strongly suspected on clinical grounds alone. The occurrence of diabetes insipidus, anterior pituitary insufficiency and visual disturbances in a 10 to 20-year-old patient, especially if male, presents a characteristic clinical picture. Headache and Parinaud's syndrome are frequently present. Skull x-rays often reveal calcification in the region of the pineal which is an unusual finding in the normal person of this age group and which helps to distinguish the lesion from the suprasellar calcification seen with craniopharyngiomas. Electroencephalography, radioisotope brain scans and cerebral angiography are rarely helpful, but pneumoencephalography usually demonstrates internal hydrocephalus, indentation of the floor of the third ventricle or an actual tumor mass arising behind the optic chiasm.

Therapy

Therapy is directed towards relief of intracranial hypertension, arrest of tumor growth and management of hormonal deficiencies and disordered water metabolism. Because of its location, attempts at radical surgical resection are rarely successful and more often result in increased mortality and morbidity. In most cases, biopsy and a shunt procedure are all that should be attempted. Radiotherapy is strongly indicated and may produce long remissions and even an occasional cure. It is important for the clinician to recall that severe anterior pituitary insufficiency may exist despite a normally appearing sella turcica and to provide adequate glucocorticoid coverage, especially before attempting any stressful procedure such as

A.M.A.—E.R.F.

Several wise men bearing gifts did come forward to support A.M.A.-E.R.F. programs in December and we know that many nice young men will benefit from their generosity. . . . A single year of medical education today costs about $5,000. As of September 15, 1970, there were 23,800 loans outstanding, involving a total A.M.A.-E.R.F. commitment of $38.5 million for promissory notes and interest. Current projections indicate there will be 15,000 freshman medical students by 1976 and to perpetuate the E.R.F. program and realize its continuing goals, a minimum of $500,000 in new guarantee funds is needed every year. (Excerpts from the report of John M. Chenault, M.D., Chairman, A.M.A.-E.R.F., to House of Delegates, A.M.A., Boston).—Mrs. Paul R. Crellin, State A.M.A.-E.R.F. Chairman, Woman's Auxiliary to the Montana Medical Association.

pneumoencephalopathy or craniotomy. Abnormalities in the regulation of body temperature and thirst should also be suspected and when present greatly complicate the management of diabetes insipidus. However, an awareness that such disorders may be present will facilitate their early recognition so that abnormalities of water balance can be anticipated and avoided.

Summary

A 13-year-old boy with a suprasellar germinoma manifested visual loss with bitemporal hemianopia, Parinaud's syndrome and evidence of multiple hypothalamic dysfunction including hyperphagia and obesity, diabetes insipidus, hypodipsia, unexplained fever, and anterior pituitary insufficiency. Initial management of diabetes insipidus proved to be an especially difficult problem but was greatly facilitated when the disorder of thirst was appreciated. There was a gratifying response to x-ray therapy with an apparent restoration of thirst and disappearance of pyrexia and hyperphagia. The importance for early diagnosis and appropriate treatment of recognizing the hypothalamic syndromes produced by this tumor is discussed and reaffirmed. •

REFERENCES

1 Simson, L. R., Lampe I., and Abell, M. R.: Suprasellar germinomas. Cancer 22: 533, 1968.
2 Rubin, P., and Kramer, S.: Ectopic pinealoma: A radiocurable neuroendocrinologic entity. Radiology 85:512, 1965.
3 Puschett, J. B., and Foldberg, M.: Endocrinopathy associated with pineal tumor. Ann. Intern. Med. 69:203, 1968.
4 Brown-Grant, W., and Cross, B. A. (Eds): Recent studies on the hypothalamus. Brit. Med. Bulletin 22:195, 1966.
5 Ross, E. J., and Christie, S. B. M.: Hypernatremia. Medicine 48:441, 1969.
6 Mahoney, J. H., and Goodman, A. D.: Hypernatremia due to hypodipsia and elevated threshold for vasopressin release. Effects of treatment with hydrochlorothiazide, chlorpropamine and tolbutamide. New Eng. J. Med. 279:1191, 1968.

Surgery of the cervical syndromes

R. J. Morelli, MD and E. W. Mack, MD,
Reno, Nevada

An interesting comparison and analysis of the surgical approaches to the problems of the cervical disc.

THE CERVICAL DISC assumes its neurosurgical importance by virtue of the fact that any, or all of its structural alterations result in a compromise of the available space for the containment of the spinal cord and its corresponding peripheral nerve roots. Few advocate early surgical intervention in the cervical syndrome. However, when non-surgical measures have failed, operative intervention serves as the only avenue of benefit to the distressed and disabled patient.

The classical posterior approach has withstood the test of time. Modifications range from total laminectomy to simple foraminotomy with root decompression. A laminectomy with durotomy, dentate ligament section and transdural extraction of a soft disc fragment is a formidable procedure with considerable morbidity. Opening of the dura of the root sleeves after bony decompression of the canal has been recommended as an addition. A foraminotomy with an extradural removal of a soft disc is also satisfactory in some instances. The use of small high speed drill bits has greatly facilitated such procedures and the use of the operating microscope or the loupe spectacles virtually eliminate technical misadventures.

With the advent of the anterior approach for cervical disc removal and interbody fusion, a new and controversial dimension has been added.[2,3,4] This, too, has its modifications,[1,8] ranging from exposing the dura and curetting the bony spurs arising from Luschka's joints to simply excising all of the available soft disc material and proceeding no further. Orthopedists have favored a "shallow dowel" procedure in which the posterior cortical surfaces of the vertebral bodies are allowed to remain and no attempt made to remove lateral disc fragments or bony spurs.[6,7]

It is, therefore, readily apparent that a great diversity of operations and variations are available.[8] The problem is the selection of the best approach to the clinically afflicted individual. Such technics as double-blind studies used by our medical contemporaries in evaluating drugs are not available to surgeons in their assessment of surgical patients. Neither is there an animal model which can be even remotely related to the problem of the cervical disc and degenerative changes of the cervical spine in man as we know it.

The association of the present authors provides something analogous to a controlled surgical series at the clinical level. One of us (RJM) by virtue of preference and training uses the anterior excision followed by the interbody fusion predominantly. The other (EWM) uses a posterior approach, which usually includes a foraminotomy and excision of soft disc fragments, if such be present. Each uses either approach in selected instances.

One operator (EWM) does not perform an interbody fusion after an anterior disc excision. Seven cases were selected for treatment in this manner. This approach had been considered for some time on cases where one might consider pain was emanating from the disc space and was not the product of actual root compression. Since there is no evidence to indicate the real need for cervical fusion, simple disc removal might in essence effect the same result as the Cloward procedure. Accordingly, these patients were selected at random, and included cases showing evidences of minimal or no radiculopathy, continuing pain problem located principally in the neck with or without shoulder radiation or occipital radiation, and negative myelography showing evidence only of central protrusion. Herein is reported an analysis of all operations in a two year period. As can be seen in Table I a total of eighty-three patients were operated by both authors. Our criteria for operation included (1) failure to improve symptomatically or any other type of management, (2) persistent and/or progressive neurologic deficits, and (3) any suggestion of spinal cord compromise (subjective and/or objective).

Technic

Anterior disc excision with interbody fusion. In the anterior approach the technic employed was essentially that of Cloward.[2,3,4] After drilling out the interspace the posterior cortical bone fragments that remained are removed. Usually this included removal of the posterior longitudinal ligament so that the dura is exposed. This allows a clear view of the anatomy involved and special effort is made to curet all of the laterally placed disc fragments along with the osteophytic spurs.

TABLE 1

Procedure			Number
I. POSTERIOR APPROACH			40
A. Foraminotomy with root decompression		34	
1. "Soft disc"	13		
2. Root scarring or bone spurs	21		
B. Total Laminectomy		6	
II. ANTERIOR APPROACH			43
A. Interbody fusion		37	
1. One level	30		
2. Two levels	7		
B. Dissectomy only		6	
1. One level	4		
2. Two levels	2		
TOTAL NUMBER OF CASE			83

Thus, visualization of the origin of the root sleeve from the dural sac is permitted, and a dissecting instrument is passed into the root canal to assure adequacy of decompression. It is our feeling that these technical points are germane to the success of this procedure in contradistinction to the more shallowly placed grafts of other authors.[1,6,10] The interspace is drilled without any traction on the cervical spine, so that at the time of actual drilling the vertebral bodies are in their natural state of proximity relative to the actual status of the degenerated disc. After the interspace has been drilled then halter traction is applied and the 5/8″ diameter dowel graft is tamped into the interspace in the ½″ diameter hole, and the anterior cortical surface of the graft is countersunk at least a millimeter from the anterior cortical surfaces of the adjacent vertebral bodies. This assures support from both cortical surfaces of the dowel graft, provides maximum apposition of the cancellous bone to cancellous bone and under ordinary circumstances precludes collapse of the central portion of the graft with subsequent angulation of the fusion.

Concerning the incision, some authors have made a point of splitting the fibers of the platysma longitudinally for best cosmetic results. We have alternately divided this muscle longitudinally and transversely in our series and have been unable to notice any significant difference in postoperative cosmetic result. In those cases in which the muscle was divided transversely care was taken to reapproximate the muscle bellies in closure.

Anterior excision without fusion. The usual approach to the anterior surface of the vertebral bodies is employed. The suspect space is then located, needle inserted and a localizing lateral x-ray taken. Once localization is established a window is performed with sharp dissection in the anterior spinal ligament. The interspace is entered using rongeurs, curets and irrigation. Insofar as possible all loose material is removed from the disc space. No effort is made to remove the outer parts of the annulus, and no effort is made to approach the dura posteriorly. It is felt that an adequate removal of the central portions of the disc and the nucleus can be carried out in this manner. Following the removal of the disc the structures are allowed to return to their normal position, and the deep cervical fascia is closed with interrupted sutures, as is the superficial fascia and skin.

Posterior laminectomy approach. A standard approach through either vertical or transverse incision is made. The sitting position is employed and the lower extremities wrapped with Ace bandages. Meticulous attention to hemostasis is given, soft tissue bleeding is controlled with electrocautery and bone bleeding with beeswax. In those cases in which spinal cord compression is evident, a total laminectomy is performed. This includes durotomy with section of the dentate ligaments. Usually the dura was left open and the muscle and fascial layers closed in watertight fashion.

In the posterior approach for root compression syndromes only, a foraminotomy with unroofing of the involved root is accomplished. "Soft" disc fragments are extracted extradurally. If more than one level is involved the hemilaminectomy between foraminotomies is carried out. High speed drill bits are used in those instances where the osteophytic spurs are so eburnated they cannot be removed by rongeuring. Whenever visualization is a problem, magnifying loupes or the operating microscope are employed.

Complications

In general, the complications of this series were minimal. There were no deaths, no instances of embolism (either vascular or air), no increases in neurologic deficits and no significant wound infections. An occasional instance of stitch abscess developed, but these subsided spontaneously with the removal of the offending suture, and no deep processes developed. In the discs excised anteriorly, there developed no instances of vocal cord paralysis, no dowel extrusions, no Horner's syndrome and no evidence of resorption of the bone plugs. All of the grafts in this series were autogenous dowel grafts taken from the patient's iliac crest, usually the right. While Cloward[4] feels the cadaver

bone is superior to graft material we have no experience with this method. This latter does necessitate a second operative incision, and we must consider morbidity to be increased in this regard. In view of what is felt to be quite uniform success using autogenous dowel grafts we have no plans to alter this regimen in spite of the admitted slight increase in morbidity from a second operative incision.

In those posterior laminectomies wherein the dura was left open no surgical meningoceles nor CSF drainage developed. We feel this is the result of a very meticulous muscle and fascial closure in watertight fashion. In the cases wherein foraminotomy and root decompression were employed there has not developed any symptomatic extradural root scarring. Neither have we thus far observed any symptomatic recurrence of osteophytic spurs which were removed for root compression syndromes by either method.

Postoperative Management

In those cases operated anteriorly an initial dietary restriction is imposed since esophageal edema of minor degree usually followed retraction. Usually a clear liquid diet is prescribed on the first day and thereafter the patient gradually increases his diet according to his tolerance. With a disc excision and fusion performed at but a single level no support is felt required and no restrictions on neck motion is imposed. In those cases where two levels are fused after dissectomy, the patient is provided with a soft cervical collar, which while by no means immoblizing the cervical spine, nevertheless imposes considerable restriction of head and neck movement generally, and serves as a constant reminder to the patient not to attempt cervical spine motions of excessive degree. These collars are worn fairly continuously for 3-8 weeks, depending on the individual constitution and rate of wound healing. None of these patients felt it necessary to wear a collar at any time after three months. Ambulation is begun on the first postoperative day and progressed as tolerated. If an excess amount of ecchymotic discoloration is noted about the hip incision with the first dressing change, the patient is usually placed on a short course of proteolytic enzyme therapy. This seems to facilitate resorption of the extravasated blood products. Hospitalization averages approximately one week following surgery and an additional convalescence of 2-3 weeks is allowed at home prior to reevaluation of the patient as to resumption of former occupation.

In this series in no instance was it felt necessary to recommend that a patient change his occupation specifically because of disc disease and surgery therefor. However, some sought different occupations which were more in keeping with their desires rather than their actual physical status, and they were supported medically in this regard.

In the posterior approach the morbidity was felt to be somewhat greater. Where a total laminectomy and durotomy was employed, marked operative pain and headache usually necessitated analgesics to the point where ambulation was delayed to the third or fourth postoperative day. Inhibition of micturition was frequently noted and required urethral catheterization and at times an indwelling urethral catheter for a short time. From this an occasional case of clinically symptomatic cystitis developed. All responded to the usual antibiotic regimen. Systemic infections were not seen. In the majority of the posterior laminotomies the procedure was entirely extradural and the morbidity was mild and more analogous to those cases operated anteriorly. Ambulation was early and seldom was a urinary catheter necessary. Cervical collars were rarely employed and then only as a reminder against sudden movements that might be productive of severe pain.

Discussion

All patients were studied preoperatively with total myelography. The contrast substance was advanced to the foramen magnum to exclude neoplasia or congenital abnormality in this area. Routine PA, oblique and lateral views were obtained. Only then was a final decision rendered as to the best operative approach in each case. Rarely discography was employed to help resolve a difficulty problem.

Decompression laminectomy with durotomy and section of the dentate ligaments in the classic operation described by Kahn[5] is our uniform approach to those patients showing signs of spinal cord compromise clinically, or showing multiple degenerative spurs and ridges at three or more levels myleagraphically. Seven such patients are included in this series. When the clinical features dictate then selected root decompression by virtue of foraminotomy were performed. Frequently a soft disc fragment is found and removed, either extradurally or transdurally. All of the forty patients so treated improved and have resumed their former occupations. One patient's convalescence was unduly prolonged, over a 6-8 week period, as a result of a rather severe postoperative toxic psychosis. This phenomena has occasionally been observed over the years and is presumed to be precipitated by excess blood breakdown products contaminating the subarachnoid pathways. Degradation products are presumed to exert a direct contact neurotoxicity over the cerebral cortex.[9] The six cases undergoing anterior disc excision without fusion all did well. Operative morbidity in this group was virtually nil and the duration of hospital stay was at most only half the time for any of the other types of procedures. Interbody fusions after dissectomy were performed on the remaining thirty-seven patients in this series and no major difficulties arose therefrom. Seven of these were at two levels and morbidity in this group was more prolonged than in those patients operated at only one level. Maximum range of cervical spine motion was not achieved for fully three months in the former group, while only three weeks seemed to suffice in the latter group.

Conclusions

The fact that almost all of the patients did well, returned to their former occupations and experienced no progression or recurrence regardless of the procedure employed confirms our view that the decompression of neural tissue is the significant feature of surgery for the cervical disc or spondylitic syndrome. Certainly in those cases with multiple level involvement and clinically demonstrable signs of cord compression or ischemia a wide decompression posteriorly is felt to be the procedure of choice. In the root compression syndromes the procedure of choice is nothing more or less than the operator's preference influenced by the mitigating features in each individual patient. All that is essential is that the root be relieved frm its compressive process—be it osteophyte, soft disc, ligament or scarring from a stretch injury. This accomplished virtually assures success.

Summary

Eighty-three operated cases of cervical cord and/or root compression syndromes were reviewed. A multiplicity of surgical procedures were employed under relatively controlled conditions insofar as a random surgical series would permit. Decompression of the neural elements is the significant importance. Rather than advocate a single approach, it is our feeling that each has its merits and should be employed according to the patient's individual situation and his surgeon's preference in each instance. •

REFERENCES

1 Aronson, N., Filtzer, D. L., and Bagan, M.: Anterior Cervical Fusion by The Smith-Robinson Approach. J. Neurosurgery 24, No. 4, 1968, 397-404.
2 Cloward, R. B.: The Anterior Approach for Removal of Ruptured Cervical Discs. J. Neurosurgery 15, 1968, 602-617.
3 Cloward, R. B.: Vertebral Body Fusions for Ruptured Cervical Discs. Description of Instruments and Operative Technique, Amer. J. Surg., 98, Nov., 1959, 722-727.
4 Cloward, R. B.: Lesions of The Intervertebral Discs and Their Treatment by Interbody Fusion Method. Clin. Ortho. 27, 1963, 51-77.
5 Kahn, E. A.: The Role of The Dentate Ligaments in Spinal Cord Compression and The Syndrome of Lateral Scerlosis. J. Neurosurg., 4, 1947, 191.
6 Robinson, R. A., Walker, A. E., Ferlic, D. C., and Wiecking, D. K.: The Results of Anterior Interbody of The Cervical Spine. J. Bone and Joint Surg., 44A, No. 8, 1962, 1569-1587.
7 Smith, G. W., and Robinson, R. A.: The Treatment of Certain Cervical Spine Disorders by Anterior Removal of The Intervertebral Disc and Interbody Fusion. J. Bone and Joint Surg., 40A, 1958, 607-625.
8 Stuck, R. M.: Anterior Cervical Disc Excision and Fusion. Rocky Mountain Med. J., June, 1963, 25-29.
9 Yuhl, E. T., Hanna, D., Rasmussen, T., and Richter, R. B.: Diagnosis and Surgical Therapy of Chronic Midline Cervical Disc Protrusions. Neurol., 5, 1955, 494-509.
10 Dereymaeker, A., and Mulier, J.: La Fusion Vertébrale Par Voie Ventrale Duos Lo Discopothie Cervicale. Rev. Neurol., 99, 1958, 597-616.

Neurologic injury--

Responsibilities of the emergency room physician

Ernest W. Mack, MD, Reno, Nevada

IT HAS BEEN THE time honored and proven responsibility of the emergency room physician to provide immediate assessment of the neurosurgically injured patient. Not only does this assessment have to come to some immediate conclusion as to extent of neurologic injury, but perhaps even more important it must determine the presence of associated injuries, such as long bone injuries, the frequent chest injuries seen with today's accidents, and of course the visceral injury.[1] Numerous papers have been written encompassing the usual physical findings which are of value in such as assessment. The major and important things from the neurosurgical point of view are assessment of level of consciousness, presence or absence of change in power or tonus or movement in the extremities, presence or absence or alteration, of reflexes, and, of course, pupillary responses. Initiation of a system of tabulating vital signs and responses are also his immediate responsibility.

Much has been said of the immediate need of x-ray examination. My own point of view, particularly in the closed injuries, is that there is question of its value as an immediate examination. However, with today's methods of practice, governed as they are by our legal colleagues, one cannot fail to get adequate, immediate x-ray study on all patients. Particularly in the management and evaluation of the head injury, especially today with the high velocity accidents on our national highways, one would be delinquent in his attention to this detail if he does not secure cervical spine films, as well as skull films, on all head injury cases. This has been our practice now for some years, and I believe it is a more or less universal practice, although perhaps overlooked at times. The association of neck injury with severe head injuries is so high as to be almost concomitant, and, of course, these are often not manifest, treated or considered until such time as there is recovery of consciousness and the appreciation of pain.

It is important to stress some particular problem areas which fall into the category of the emergency room physician, and certainly must be dealt with immediately by him, prior to calling or arrival of the neurosurgical consultant. First and foremost is the airway.[2] A catch phrase adequately describes the problem — "the adequate airway." Dr. Halldane perhaps described best the role of anoxemia in his statement, "Anoxemia not only stops the machine, but wrecks the machinery." Numerous previous reports have established the value and necessity of the establishment *IMMEDIATELY* of an adequate airway. All too often, even in areas where such management is stressed, the neurosurgeon arrives at the emergency room, minutes to hours after the time of the initial problem, to find the patient suffering from mild to moderate anoxemia with an impeded airway. Often anoxemia relates simply to the patient's level of consciousness and his status and habitus, rather than to any actual interference with respiratory apparatus. Our reviews in this matter have led to certain concepts which I think are invaluable. First, and foremost, the emergency room physician should have adequate training and experience in the insertion of endotracheal tubes, which can be used as an initial means of securing the adequate airway in the patient

with depressed consciousness. Secondly, and of equal importance, he must be able to perform tracheostomy immediately, either using one of the emergency methods or the standard procedure—both of which can be done readily in the emergency room. In this connection, I would mention the Shelden tracheostomy,[3,4] with which in my own personal experience of twenty times, I have had one instance of difficulty in which the tube placement was unsatisfactory and had to be revised by the open method. However, there have been reports which have not been this favorable.[5] Even in the most trying circumstances, one can carry out the tracheostomy in the emergency room if need be. As a practitioner who has practiced in a small community and has over the years had opportunity to attend head injuries in remote areas, I have on occasion done tracheostomy even in poor light through or over the tops of beds, and seem somehow to have accomplished the necessary procedure and to have secured the airway which is so needed and demanded.

Our early experience, reported some years ago,[2] in which we deliberately took cases which might be assessed as being hopeless from their initial entrance into the emergency room, treated them immediately with tracheostomy as well as other procedures which were indicated, gave us a gratifying survival experience in this type of case. We were gratified by the final result in what had appeared to be the type of patient who would likely be a total loss from a functional point of view under the usual methods of treatment. So it has continued to be our practice that tracheostomy should be considered initially and immediately. I still find, to my regret, that occasionally I discover that I am considering a tracheostomy in a patient who has not had one, when I know that I should have done this at some earlier period.

One of the smaller problems which can be easily avoided is wound management in the otherwise injured patient. Very often our experience has been that the patient has a moderate to severe scalp wound, or other cutaneous wound, and has depressed consciousness and has an obvious severe head injury. He is going to require observation and treatment for some time. The inexperienced physician is all too apt to say, "we will place a dressing over this wound and get the patient quickly into the intensive care environment." This is a mistake. The intensive care environment is not a set-up in which one can do proper debridement and suture of extensive wounds, and I would make a plea for the management of these wounds at the emergency room level after the usual basic maneuvers to sustain the patient and to establish his airway have been carried out. There is a period in the emergency room when these small procedures can be done under local anesthetic, if anesthetic is necessary, and done adequately and completely.

Another modality of management in the past few years has been the use of the echoencephalogram[6] (or the use of ultrasound ranging) to establish the position of the diencephalic midline. This procedure can be done readily and quickly by not only the emergency room physician, but also by technical or nursing personnel who might be present. It is invaluable. It is a procedure that can be done even on the disturbed patient, as it is not painful, and takes only a few moments. I think that the establishment of a non-shifted midline is of value because this procedure can be repeated at frequent intervals during the assessment period, and

DISABILITY SUMMARY

Date	Time	Arm	Leg	Speech	Comprehension	Alertness	Total	Other

Arm & Leg:
1 - Normal
2 - Lift from bed
3 - Movement only
4 - Paralysis

Speech & Comprehension:
1 - Normal
2 - Useful
3 - Few words
4 - Mute

Alertness:
1 - Alert
2 - Withdrawn, drowsy
3 - Arousable with stimulus
4 - Coma

Fig. 1

will very often reveal evidence of a shifting midline—even before vital signs are altered. This will alert the attending physician and personnel to an impending problem. We have used this modality of study for some years and feel that it is, or should be, a part of the armamentarian of the well-equipped emergency room and believe that the personnel therein should be adequately trained in its use.

Next, I would call your attention to a method of reporting and following injury cases. I am sure that most of us have some system which works well for us. Dr. Galbraith at the University of Alabama[7] introduced this system, which he formulated, and which I think works well. With a little training, the attending personnel become familiar with it and thereafter the system can be used in grades of frequency, as indicated by the extent of injury of the patient. A numerical figure can be arrived at so that there is an index which can be followed. For example, a changing index can indicate a deteriorating situation or, conversely, an improving situation. A procedure we have found useful is to keep a day-to-day graph, illustrated in Fig. 1. This follow-up of the patient is used not only in and through the emergency room, but also as he passes into the intensive care environment.

A brief word should be said of spinal cord injury. At least in our environment now, with proper training of ambulance and emergency personnel from industry, we find the patients arriving reasonably splinted. Then it is a question of maintaining this splinting until adequate studies have been secured, we believe that some type of immediate cervical traction in the cervical injury is important. Tongs are applied in the emergency room so that continuous traction is in place and will continue in place.

Attention to the urinary tract is important on the emergency room level. In patients sustaining spinal cord contusion our practice has been to install an indwelling catheter immediately, commencing the decompression of the bladder at this level, rather than allowing it perhaps to go on for several hours during a time when attention is being drawn to other areas.

Management peripheral nerve injury at the emergency room level deserves mention. This, of course, includes most of the small nerve injuries associated with wounds and lacerations of the extremities. For lacerations it has been our practice at the time of debridement and suture, if possible, to attempt nerve suture. If the injury is of another character, such as a fragmentation type wound our recommendations is reapproximation of nerve ends if possible, using radiopaque suture material, so that secondary repair can be done at a later date if necessary, without having to deal with a problem of retraction and shortening. •

REFERENCES

1 Wilson, C. B.: Management of Abdominal Injuries in the Presence of Head Injuries. California Medicine, Volume 111, No. 5, 1969, p. 343.

2 Mack, E. W., Smith, N. B., and Rosenauer, A.: Tracheotomy in Severe Head Injuries. Rocky Mountain Journal, May, 1959.

3 Sheldon, C. Hunter: New Method for Tracheotomy. Journal of Neurosurgery, 1955, Volume 12, No. 4, pp. 428-31.

4 Sheldon, C. Hunter: Percutaneous Tracheotomy. Journal of American Medical Association, December 21, 1957, Volume 165.

5 Ziperman, Lt. Col. H. Haskell, and Thornton, S.: Evaluation of the Sheldon Tracheotome. AMA Archives of Otolaryngology, January, 1959, Volume 69, pp. 98-102.

6 Kurze, T., Dyck, P., and Barrows, H. S.: Neurosurgical Evaluation of Ultrasonic Encephalograph. Journal of Neurosurgery, Volume 22, p. 437, May, 1965.

7 Galbraith, J. G.: Medical College of Alabama: Personal communication.

Choose the smooth road

to thyroid replacement therapy

The automatic

transition.

Your patients start thyroid therapy smoothly, easily. They feel better all along the way with no metabolic "bumps."

The gradual physiologic action of T_4 SYNTHROID provides virtually an "automatic" transition through the range of complete thyroid replacement therapy.[1]

Predictably responsive!

This kind of comfortable patient response has made SYNTHROID the most widely prescribed brand of thyroid drug in the United States. It's a Cadillac of thyroid medications ... with Volkswagen economy.[2]

The road to normalized thyroid status is a continuous one. You make it smooth and economical with SYNTHROID.

1. The deiodination of T_4 to T_3 at the cellular level has been discussed in the literature. Reprints on the subject are available from the Flint Laboratories Medical Department. Use of T_4 alone therefore provides your patients with a natural hormone combination of T_3—T_4.
2. Patient cost of SYNTHROID is less than a penny a day more than desiccated thyroid. SYNTHROID costs patients nearly 50% *less* than the synthetic combination products: American Druggist BLUEBOOK, March 1970-71

Synthroid®
(sodium levothyroxine)

FREE
MEDICATION DISPENSERS
TO START ALL YOUR PATIENTS ON SYNTHROID, IN THESE STRENGTHS:
0.05 mg. (white); 0.1 mg. (yellow); 0.15 mg. (violet); 0.2 mg. (pink).

seven color-coded strengths plus injectable

Indications: SYNTHROID (sodium levothyroxine) is specific replacement therapy for diminished or absent thyroid function resulting from primary or secondary atrophy of the gland, congenital defect, surgery, excessive radiation, or antithyroid drugs. Indications for SYNTHROID (sodium levothyroxine) Tablets include myxedema, hypothyroidism without myxedema, hypothyroidism in pregnancy, pediatric and geriatric hypothyroidism, hypopituitary hypothyroidism, simple (nontoxic) goiter, and reproductive disorders associated with hypothyroidism. SYNTHROID (sodium levothyroxine) Injection is indicated in myxedematous coma and other thyroid dysfunctions where rapid replacement of the hormone is required. When a patient does not respond to oral therapy, SYNTHROID (sodium levothyroxine) injection may be administered intravenously to avoid any question of poor absorption by either the oral or the intramuscular route.
Precautions: As with other thyroid preparations, an overdosage may cause diarrhea or cramps, nervousness, tremors, tachycardia, vomiting and continued weight loss. These effects may begin after four or five days or may not become apparent for one to three weeks. Patients receiving the drug should be observed closely for signs of thyrotoxicosis. If indications of overdosage appear, discontinue medication for 2-6 days, then resume at a lower dosage level. In patients with diabetes mellitus, careful observations should be made for changes in insulin or other antidiabetic drug dosage requirements. If hypothyroidism is accompanied by adrenal insufficiency, as Addison's Disease (chronic subcortical insufficiency), Simmond's Disease (panhypopituitarism) or Cushing's syndrome (hyperadrenalism), these dysfunctions must be corrected prior to and during SYNTHROID (sodium levothyroxine) administration. The drug should be administered with caution to patients with cardiovascular disease; development of chest pains or other aggravations of cardiovascular disease requires a reduction in dosage.
Contraindications: Thyrotoxicosis, acute myocardial infarction.
Side effects: The effects of SYNTHROID (sodium levothyroxine) therapy are slow in being manifested. Side effects, when they do occur, are secondary to increased rates of body metabolism; sweating, heart palpitations with or without pain, leg cramps, and weight loss. Diarrhea, vomiting, and nervousness have also been observed. Myxedematous patients with heart disease have died from abrupt increases in dosage of thyroid drugs. Careful observation of the patient during the beginning of any thyroid therapy will alert the physician to any untoward effects.

In most cases with side effects, a reduction of dosage followed by a more gradual adjustment upward will result in a more accurate indication of the patient's dosage requirements without the appearance of side effects.
Dosage and Administration: The activity of a 0.1 mg. SYNTHROID (sodium levothyroxine) TABLET is equivalent to approximately one grain thyroid, U.S.P. Administer SYNTHROID tablets as a single daily dose, preferably after breakfast. In hypothyroidism without myxedema, the usual initial adult dose is 0.1 mg. daily, and may be increased by 0.1 mg. every 30 days until proper metabolic balance is attained. Clinical evaluation should be made monthly and PBI measurements about every 90 days. Final maintenance dosage will usually range from 0.2-0.4 mg. daily. In adult myxedema, starting dose should be 0.025 mg. daily. The dose may be increased to 0.05 mg. after two weeks and to 0.1 mg. at the end of a second two weeks. The daily dose may be further increased at two-month intervals by 0.1 mg. until the optimum maintenance dose is reached (0.1-1.0 mg. daily).
Supplied: Tablets: 0.025 mg., 0.05 mg., 0.1 mg., 0.15 mg., 0.2 mg., 0.3 mg., 0.5 mg., scored and color-coded, in bottles of 100 and 500. Injection: 500 mcg. lyophilized active ingredient and 10 mg. of Mannitol, N.F., in 10 ml. single-dose vial, with 5 ml. vial of Sodium Chloride Injection, U.S.P., as a diluent. SYNTHROID (sodium levothyroxine) INJECTION may be administered intravenously utilizing 200-400 mcg. of a solution containing 100 mcg. per ml. If significant improvement is not shown the following day, a repeat injection of 100-200 mcg. may be given.

FLINT LABORATORIES
DIVISION OF TRAVENOL LABORATORIES INC
Morton Grove, Illinois 60053

As your hypothyroid patients travel along the smooth road, let us be of service in these 4 specific ways:

1 FREE FILM AND BOOK ON HYPOTHYROIDISM: In a 30-minute, 16-mm. sound/color film, 5 prominent endocrinologists discuss "Thyroid Deficiency—Current Concepts of Diagnosis and Treatment". Film available on FREE loan to physician groups or hospitals.

A new book, soon to be published, is devoted to the clinical aspects of hypothyroidism. The author, a leading endocrinologist, describes the many faces of the condition and emphasizes the importance of clinical assessment of the patient. Write, or ask your Flint man, to be placed on our list to receive a free copy.

2 NEW THYROID FUNCTION TEST BOOK: Newly published *Guideposts to Thyroid Therapy* discusses the tests most appropriate for use with each type of thyroid medication. Fully describes thyroid function tests and places their relative values in perspective for physicians. It will give you valuable new insights into the role of these tests in diagnosis and treatment. FREE—ask your Flint man.

3 TO START THERAPY, FREE TAB-MINDER dispensing units, color-coded to match colors of SYNTHROID tablets in starting dosage strengths. TAB-MINDER helps patients to regularly take the thyroid dosage you prescribe, avoid medication errors. Ask your Flint man.

FREE MEDICATION DISPENSERS TO START ALL YOUR PATIENTS ON SYNTHROID, IN THESE STRENGTHS: 0.05 mg. (white); 0.1 mg. (yellow); 0.15 mg. (violet); 0.2 mg. (pink).

4 SYNTHROID® INJECTION FOR THYROID EMERGENCIES: Whenever (as in myxedema coma) rapid replacement of thyroid hormone is needed to sustain life, prompt clinical response is essential. SYNTHROID INJECTION makes this therapy instantly available. Useful also in postoperative thyroid medication situations until oral therapy can be reinstated. Ask your Flint man for further information.

FLINT LABORATORIES
DIVISION OF TRAVENOL LABORATORIES, INC.
Morton Grove, Illinois 60053

Sequential oral contraception

*Graduated sequential therapy with Profem**

Charles W. Zumpft, MD, Las Vegas, Nevada

A new pharmacologic approach using estrogen and progesterone in continuous therapy.

PROFEM IS AN oral contraceptive that employs a new concept called graduated sequential therapy. Each packet of 28 tablets has three different dosage levels of estrogen. The first seven tablets each contain 0.025 mg. of ethinyl estradiol, the next 14 tablets each contain 0.100 mg. of ethinyl estradiol, and the final seven tablets each contain 0.125 mg. of ethinyl estradiol and 10.0 mg. of medroxyprogesterone acetate. Therapy is continuous —when one packet of 28 tablets is completed, the patient begins another packet the next day. The rationale is to provide contraception through doses of estrogen and progestogen that more nearly simulate the natural production of these hormones in the normal menstruating women.

Continuous or uninterrupted therapy with other combinations is also a fairly new concept. It has become clear that some women, and not only those in the lower socio-economic strata, have difficulty remembering or understanding when to begin a new packet of 21 tablets. For this reason, there have been some unwanted pregnancies through missed tablets or tablets taken at the wrong time. A partial solution is to include seven inert or placebo tablets in the dose packet so that therapy is continuous.

Thus Profem appears to have two advantages—one practical and one physiological. A patient on Profem is unlikely to become confused since one tablet is to be taken each day for as long as contraception is desired. And, in contrast to other combinations, the dose-time relationship between estrogen and progestogen approximates, to some degree at least, that of the normal human menstrual cycle.

This report describes a study designed to evaluate the acceptability, efficacy and safety of graduated sequential therapy with Profem in over 350 private patients and over 3,000 total cycles of experience.

Methods

The vital statistics of the study population are given in Table 1. All were private patients, and all were informed that this was an investigational study of a new oral contraceptive drug. Before entering the study, the patients were given a complete physical and gynecologic examination including a pap smear. Only those who had normal findings were included. In addition, each patient was interviewed to determine her menstrual history and the previous use of contraceptive drugs or devices. Considerable time was spent with each patient before beginning therapy to explain the rationale of graduated sequential therapy, the method of administration, and what side effects might be expected.

At the end of the first six weeks and at ten week intervals thereafter, each patient was interviewed and, if necessary, re-examined. Complete data was recorded on menstrual cramping, duration of menses, changes

*PROFEM — Product of Upjohn Company, Kalamazoo, Michigan.

TABLE 1

Vital Statistics

Age		Marital Status		Pregnancies	
<15	0 (0.0%)	Single	56 (14.7%)	0	87 (22.7%)
15-19	44 (11.6%)	Married	287 (75.3%)	1	97 (25.3%)
20-24	155 (40.9%)	Widowed	5 (1.3%)	2	91 (23.8%)
25-29	85 (22.4%)	Divorced	32 (8.4%)	3	43 (11.2%)
30-34	47 (12.4%)	Separated	1 (0.3%)	4-6	52 (13.6%)
35-39	35 (9.2%)			>6	13 (3.4%)
>39	13 (3.4%)				

in menstrual flow, length of cycle, onset of bleeding after last pill in packet, body weight and blood pressure. Each patient filled out a Patient Information Calendar card which elicited side effects such as appetite changes, headache, abdominal bloating, bleeding and tiredness, among others. These cards were turned in to the investigator at the next interview.

While the study is ongoing, this report deals only with the first 24 cycles in which there are enough patients to draw meaningful conclusions and inferences.

Results

One patient became pregnant after missing tablets 12 and 13 in cycle 16. Otherwise Profem was 100 per cent effective. Table 2 gives the side effects or complaints in comparison to the reasons for dropping from the study. Other complaints not listed include loss of appetite, vertigo, nervousness, polyuria, low libido, premenstrual tension, diarrhea, emotional problems, faintness, flatus, hot flashes and sweating, alopecia, thirst and muscle cramps. These were infrequent and were not felt to be drug-related. There were no thromboembolic disorders, severe hypertension or other serious sequelae to Profem therapy.

Twenty-one patients elected to drop out of the study to become pregnant. Of these, follow-up data are available on 11. These patients had had 2 to 24 treatment cycles. Conception occurred in post-treatment cycle 1 to 6 without relation to duration of contraceptive medication. While there was one spontaneous abortion in this small group, there is nothing to indicate that Profem has any adverse effect on post-treatment pregnancies.

The changes in menstrual flow are given in Table 3. After the sixth cycle there is a trend to cluster about medium flow—the per cent of women with medium flow remains over 90 through 24 cycles. As expected, the duration of menses remained remarkably constant throughout the study period. There was a slight trend to stabilize at about five days during therapy—the mean range was 4.8 to 5.1 days as contrasted with the mean initial duration of 4.4 to 5.0 days. Cycle length

TABLE 2

Incidence of Side and Drop-outs

Among 304 patients and 3401 Cycles

Side Effect[1]	No. of Pts.	No. of Cycles	No Dropping Out
Nausea	44 (14.47%)	77 (2.26%)	6 (1.9%)
Headache	44 (14.47%)	97 (2.85%)	3 (0.9%)
Abdominal Bloating	35 (11.51%)	76 (2.23%)	———
Intermenstrual Vaginal Bleeding	32 (10.53%)	57 (1.68%)	5 (1.6%)
Breast Problems	32 (10.53%)	53 (1.56%)	1 (0.3%)
Fatigue	24 (7.89%)	43 (1.26%)	2 (0.6%)
Weight Gain or Increased Appetite	19 (6.25%)	27 (0.79%)	4 (1.3%)
Edema	18 (5.92%)	39 (1.15%)	———
Vaginal Mucorrhea	17 (5.59%)	38 (1.12%)	2 (0.6%)
Blurred Vision	14 (4.61%)	27 (0.79%)	7 (2.3%)
Backache	10 (3.29%)	15 (0.44%)	———
Depression	4 (1.32%)	12 (0.35%)	6 (1.9%)

[1]Includes both clinically significant and insignificant side effects.

TABLE 3

Changes in Menstrual Flow

Cycle	No. of Patients	Light Flow	Medium Flow	Heavy Flow
1*	292	33 (11.3%)	232 (79.5%)	27 (9.2%)
3	245	11 (4.5%)	208 (84.9%)	26 (10.6%)
6	191	6 (3.1%)	169 (88.5%)	16 (8.4%)
9	148	4 (2.7%)	139 (93.9%)	5 (3.4%)
12	117	6 (2.6%)	107 (91.5%)	7 (6.0%)
15	86	1 (1.2%)	82 (95.8%)	3 (3.6%)
18	73	0 (0.0%)	72 (98.6%)	1 (1.4%)
21	53	0 (0.0%)	52 (98.1%)	1 (1.9%)
24	36	0 (0.0%)	35 (97.2%)	1 (2.8%)

*Cycle 1 is not a drug-induced flow

during therapy was not much different than the initial cycle length. There were no trends or important variations.

The onset of bleeding after the last tablet in each cycle was also constant during Profem therapy. The mean number of days to withdrawal bleeding ranged from 2.74 to 2.92 from cycle 1—2 to cycle 23-24. The per cent of patients who bled within seven days of the previous cycle ranged from 97.1 to 99.9 through the 24 cycles of therapy. It is apparent from the duration of menses, cycle changes, and onset of bleeding that Profem induces no significant alteration of menstrual pattern. If anything, there is a tendency to regulate the menstrual flow.

The changes in body weight during therapy are shown in Table 4. While weight gain is sometimes a problem with oral contraceptives, it appeared that Profem has no appreciable effect on body weight. There were individual exceptions, however, but as many women lost as gained weight.

The changes in blood pressure during Profem therapy are shown in Table 5. There was a slight increase in both systolic and diastolic pressure during therapy. These differences probably have no clinical significance since individual differences were all within normal ranges.

TABLE 4

Mean Changes In Body Weight During Therapy

No. Patients	Cycle	Means (lbs.)
304	0	132.06
	3	132.54
235	0	131.86
	6	131.69
178	0	132.01
	9	132.45
136	0	131.43
	12	131.26
107	0	131.50
	15	131.49
85	0	132.16
	18	132.91
67	0	130.40
	21	131.15
48	0	131.29
	24	130.42

Ten patients had the following laboratory tests run initially and at cycle 6 and cycle 12: SGPT, serum cholesterol, BUN, hemoglobin, WBC count, platelet count, PBI, F.B.S. and serum calcium. All tests were within normal limits at all test periods.

TABLE 5

Changes in Blood Pressure During Therapy

No. Patients	Mean Blood Pressures				
	Initial	3 Mo.	6 Mo.	12 Mo.	24 Mo.
304	117.27 / 71.81	119.58 / 74.77			
235	117.08 / 71.32		120.92 / 74.42		
136	115.81 / 70.74			121.40 / 76.00	
48	117.04 / 72.69				121.67 / 73.58

Discussion

Profem has been under evaluation in a number of clinics for over four years, and several other investigators have discussed sequential therapy with Profem. Balin, et al.[1] studied a number of sequential contraceptives including Profem. He concluded that all of them offer additional protection, in comparison to fixed estrogen-progestogen combinations, because estrogen therapy is started on the first three days of the cycle. This initial estrogen may suppress the early FSH surge found in the normal ovulatory cycle.

Bailo and Finzi[2] agree that estrogen alone during the first part of the menstrual cycle is more nearly physiologic than estrogen in combination with progestogen. These investigators used Profem to treat 28 patient complaining of dysmenorrhea, premenstrual tension, and other disturbances relating to ovulation. Twenty-five of the patients were judged to have good to excellent results; the other three had fair results. Side effects were mild and tolerance to Profem was excellent. Tyler[3] in a recent review of oral contraceptive drugs, stated that his experience with Profem over a two-year period with several hundred patients was very encouraging in terms of efficacy and side effects.

Mishell, et al.[4] reviewed his experience with Profem in 208 medically indigent patients, 37 of whom had completed one year of therapy. Only one patient became pregnant, apparently while taking the drug correctly. He was impressed by the patient acceptance of Profem—very few of his patients missed taking any of the tablets. While the mode of action of all estrogen-progestogen contraceptives is generally agreed to be supression of gonadotropins, Mishell feels that other antifertility mechanisms may be partially responsible for Profem's effectiveness. He suggested among others, alterations in tubal motility and sperm transport.

Summary

The present study consisted of 304 private patients who have completed a total of 3,401 cycles; a significant number completed 24 months of therapy.

The incidence of side effects was low, patient acceptance was good, and there were no serious medical problems associated with therapy. Profem apparently has little or no adverse effect on cycle length and duration of menses. There may be some tendency for Profem to regulate menstrual flow — as therapy proceded there was a trend to cluster around medium flow.

It is concluded that Profem is an effective oral contraceptive drug, with some advantages over other estrogen-progestogen combinations. There is no question, based on my experience that continuous therapy is more acceptable than interrupted therapy. In addition, graduated sequential therapy more simulates the normal menstrual cycle and may thus prove to have physiological advantages over combinations that offer a fixed dose of estrogen and progestogen throughout the cycle. •

REFERENCES

[1] Balin, H., et al.: Sequential Approach to Oral Contraceptive Therapy. Int. J. Fert., 14:300-308, Oct.-Dec., 1969.

[2] Bailo, V., and Finzi, C.: The "Sequential" Method with a New Estrogen-Progestogen Combination in the Control of Ovulation. Minerva Ginecologica, 20:1885-1887, Dec., 1968.

[3] Tyler, E. T.: Current Research in Steroid Contraception. J. Reprod. Fert., 20:319-330, 1969.

[4] Mishell, D. R., et al.: Continuous Daily Sequential Oral Steroidal Contraception: A Preliminary Report. Advances in Planned Parenthood, 4:103-109, Apr., 1968.

MEDICAL CONFERENCE
from the
UNIVERSITY OF NEW MEXICO SCHOOL OF MEDICINE

The fragmented patient*

Presented by: Jeffrey D. Thorley, MD
Resident in Medicine

Discussed by: John R. Graham, M.D.
Assistant Professor, Department of Psychiatry

Presentation

This 31-year-old woman was seen at the Bernalillo County Medical Center emergency room on the afternoon of August 3, 1969 complaining of shortness of breath and pain in the left shoulder, neck and face, relieved only by strong narcotics. In addition, she complained of shortness of breath over the previous two months. The admitting physician felt uneasy and somewhat irritable during his evaluation. He sensed her discomfort but also noted she was demanding. The following history was obtained at admission.

Past History: As a young girl and teenager she had violent temper outbursts mainly directed at her father although she was constantly annoyed with her stepmother. She had a "nervous breakdown" her first year in college. She reportedly slept for two weeks at that time and received little formal evaluation or treatment.

About 10 years prior to this admission she was diagnosed as being hypothyroid and treated with thyroid pills for one year. At that time she developed epigastric pain and nausea. An upper GI series revealed an ulcer and she was treated with antacid and diet wtih partial resolution of symptoms. She was in two automobile accidents subsequently, on both occasions being knocked unconscious. The first accident was in 1961. Subsequently she developed neck and back pain and underwent five cervical fusions and a lumbar laminectomy. During that time she was also hospitalized in psychiatric hospitals five different times for suicide attempts, depression, narcotics withdrawal and at one point was diagnosed as having "schizophrenia."

Three years prior to admission here, she was thought to have psychomotor epilepsy (by a psychiatrist) and started on Dilantin and Phenobarbital. A neurologist felt her seizures were psychogenic. Shortly thereafter she developed a hoarse voice and it was discovered her left vocal cord was paralyzed. The reason for this was never clarified. Over the past two years she has had lower respiratory infections four times and was treated for toxoplasmosis with Daraprim and sulfonamides on the basis of an elevated Sabin-Feldman dye test.

One year prior to admission she developed severe menstrual cramps and was evaluated for endometriosis. Culdoscopy was normal, however. Because of her many problems and because she had changed doctors frequently, she had been seen by many practicing physicians and specialists in the community.

Family and marital: Her mother died giving her birth. Her father remarried when the patient was four and the family moved to New Mexico

*November 8, 1969. William S. Curran, MD, Associate Editor.

when she was eight, after which her father purchased a small business. Her father and stepmother had a son who was 10 years younger than the patient. She and her stepmother had many arguments. When the patient was 20 she married a man she met at a rodeo who turned out to be an alcoholic. She divorced him after one month of marriage. Currently she is living in a two-bedroom apartment with an elderly, retired nurse. She had very few boyfriends and no premarital relationships. During her marriage she had intercourse only once, and only once since.

Social: As a child she was known as a "loner." She had a steady boyfriend in high school but decided to go to college rather than marry him. She was athletic both in high school and in college and had few dates in college. Currently she denies any interest in men.

School and work: She always had good grades through school. In college she also did well and working during her summers as an athletic director at a girls' camp. During college she occasionally had very heavy alcohol intake. Because of sickness her work record has been inconsistent. Social work in a large institution was satisfying for her but she left that job because of illness more recently. Since, she has worked with her father in his business.

Physical Examination: BP 120/70, P 96, R 20, T 97.6°F. She was a tall, thin, anxious woman who was slightly masculine in appearance. Her left pupil was 1 mm larger than the right. However, both reacted equally to light. She had limited range of motion in neck consistent with previous surgery and large scars anteriorly and posteriorly. The lungs were clear. The liver was palpable, two centimeters below the right costal region and was not tender; total liver span was eight centimeters by percussion. She had a large scar over the left foremuscle anteriorly and many well healed lacerations on the volar surface of her left forearm. Neurological examination revealed weak 7th, 9th and 10th cranial nerves on left side, weakness of all movements of the left arm and sensory loss in the L_4, L_5, S_1 distribution of the left leg. Reflexes were normal as was the remainder of the physical examination.

Hospital Course: Laboratory studies were normal. Complaints of pain continued in spite of Demerol, Dolophine, Talwin and Vistaril in various combinations. Dilantin and Phenobarbital were continued. A neurologic consultant felt that her pain and seizures could not be explained on organic grounds. A hyperventilation EEG was normal. Pulmonary function tests showed mild obstructive airway disease. This was interpreted as being due to her heavy cigarette smoking.

After psychiatric consultation and firm limit setting by the hospital staff she agreed to stop all pain medications and did well. She was discharged on Dilantin only, to be followed by the psychiatry department.

Discussion

This history makes the dutiful physician back off. He knows it will require a lot of time to systematically review and sort out all the findings. One senses a demanding attitude on her part; a demand that something be done. In reviewing the history, you realize many physicians have encountered this demand and buckled under it.

Careful observation of the problems is needed and I would suggest there are three different levels of human behavior available for study. The first involves significant past experiences of the patient. Prior to the 1961 accident, there were many problems. On the second level of observation, we note her current life situation. She is 31 years old, unhappily married for two weeks at age 25, without children, has work problems, is at odds with her family. It's a most distressing situation! The third level of observation, and perhaps the most important, is the immediate interaction between the physician and the patient. What responses are triggered off in the physician? Demanding patients can make the physician feel impotent, frustrated and angry. This patient's message comes through clearly; after all this time, the doctors still haven't done the job right.

As physicians it is most important that we be aware of our responses to patients. The patient communicates a need and wish for help but says it in a controlling manner. Her history with her demanding quality is almost certain to cause distress in the physician. If the physician accepts her as a patient, he takes on some of her problems. Her demands characteristically increase. The physician's tolerance of the patient decreases in an inverse ratio to the persistence of symptoms, increase of demands and night telephone calls. Who needs this kind of trouble? The final result is usually rejection by the physician. The central question for us must be one of changing this potentially negative interaction to a positive therapeutic encounter of benefit to the patient or at least one of preventing further harm through rejection.

There are some special problems in handling a difficult patient in a large medical center; especially a teaching hospital. The quality of medical care in such an institution is frequently related in a negative manner to the number of specialists seeing her. In fact, this patient was *fragmented.* The hospital setting may allow the doctor more anonymity and less direct responsibility because other physicians, nurses and technicians are involved with the patient. Group care makes her less of a threat. The availability of other specialists allows a type of formalized rejection apparatus where one group of doctors at a time can shift the focus from one aspect of the clinical problem to another. Physicians who have seen her are aware that she is demanding and difficult. Few can comfortably acknowledge their own desire to make contacts with her as brief as possible.

Rejection by the physician is not the only cause of fragmentation. The patient's demands have a quality of magical expectation—she will find relief and an answer to her problems. She seems unaware of her problems in living, coping and adapting; she avoids reality. She is searching for something and presents to the physician with the hope of cure. As soon as there is any hint that he will not deliver the goods (or when negative feelings emerge) she moves on to the next physician.

Differential Diagnosis

Does the patient realize what she is doing? Is she in control? This is a difficult question with no easy answer, but does lead us to certain problems in differential diagnosis.

(1) Factitious Illness: There are numerous reports in the literature of patients consciously distorting their medical history, providing misleading findings and adulterating laboratory specimens. Such behavior can create a real tragedy if prolonged, expensive diagnostic evaluation and treatment procedures result. Two syndromes of factitious illness have been described and were apparently considered in this woman's case.

(a) Munchausen's Syndrome: Review articles by Ireland et al[1] and Spiro[2] provide interesting surveys of this disorder. The patient is generally described as aggressive, difficult, unruly and irritable. No clear cut diagnosis can be made of the presenting problem. They tend to receive large amounts of medication and drug addiction is relatively common. When placed under stress or confronted by the staff about inconsistencies in the medical history or behavior in the hospital, the patient will generally leave against medical advice; only to pop up at some other facility later. Though labeled factitious, it is important to realize the patient suffers greatly and is an unhappy individual.

The name Munchausen was first applied to this symptom complex in 1951 in a brilliant paper by Asher.[3] There was indeed a real Munchausen—a German soldier of fortune, a brilliant natural philosopher, an embezzler and the ultimate trickster and spalpeen. His full name was Baron Hieronymus Karl Friederich von Munchausen and his misadventures were first described by Rudolph Erik Raspe in 1785. It is only fair to note that Raspe was also a confabulator, who embellished his subject considerably. However, the Baron was colorful enough on his own. He reportedly lived his life moving from city to city and tavern to tavern entertaining anyone who would listen to his ridiculously tall tales. Since his legend has survived for two centuries, he could certainly be called one of the biggest and best liars of all time. For this reason the diagnosis of Munchausen Syndrome has a distinctly devious and hostile connotation.

(b) Malingering: Although this diagnosis is made rather frequently, there are no clear cut criteria to describe a symptom complex. But it is fair to say malingering should only be diagnosed in the absence of psychiatric pathology. By definition the malingerer is someone who is consciously lying. It may be difficult to tell whether a patient's behavior and description of symptoms is deliberately made up. One thing is clear however, the multiple and vague complaints are part of a maladaptive pattern of coping.

The response to this type of individual is generally intense dislike. Notices in emergency room describe individuals who "should not be admitted or treated under any circumstances." It is analogous to the frontier sheriff who tells the bad guy to be out of town by sundown. This patient is an unhappy person and being labeled "malingerer" may bypass the underlying personality disorder or situational problem giving rise to the behavior. It is a human phenomenon to malinger. It can be a temporary and restorative attempt on the part of the individual to protect against some stressful situation. All of us avoid certain problems and keeping the "healthy" aspects of malingering in mind may make it easier to treat the "unhealthy" extremes seen in some patients.

(2) Conversion Hysteria

Here is another difficult syndrome to recognize and treat. The patient typically presents with a very complex series of symptoms and signs. Occasionally the problem may be relatively clear cut. Dysfunction of any organ or part of the body may develop and any part of the voluntary nervous system can be involved with sensory changes noted.

In evaluation we look below the surface for precipitating events of which the patient is unaware. The dysfunction has a symbolic quality or an unconscious level making it difficult to understand hysteria. This is not to say there is any problem in identifying the dysfunction. It is quite evident, and curiously the patient is characteristically indifferent to the limitations imposed by the presenting problem. The term "secondary gain" has been used widely in connection with conversion hysteria. It's a difficult term meaning a lot of things to those who use it. But universally it carried an implied derogatory quality. It is true that the patient derives some "benefit" from the syndrome but the benefit is gained at a high price. Since the process is unconscious, it is not an attempt to malinger. In fact, the patient's mind is really playing a trick in its continuing attempt to maintain a homeostatic balance under stress.

(3) Traumatic Neurosis

The vulnerability of an individual in response to trauma must be considered in the differential diagnosis of this patient. There is clear history of serious injury and prolonged medical treatment. But be on guard against using this diagnostic term! It was first introduced in 1916 and

has taken on many meanings. The original definition identified someone free of emotional problem prior to an injury after which a neurosis developed. The term is misleading and narrow. The post traumatic reaction may be neurotic—but in addition, it may be psychotic or cause severe personality disorders. Because the diagnosis is made after the fact, it is assumed that a detailed evaluation of the patient's ability to cope prior to trauma is made. Unfortunately, this is infrequently the case and the diagnosis, made prematurely, may close off the problem solving before the difficulties are defined.

(4) Organic Brain Syndrome

The diagnosis of epilepsy was considered in this woman. An associated organic brain syndrome would impair intellectual functions, memory and judgment. Abnormal behavior may become an increasing problem as the usual coordinating and cohesive functions of the brain tissue decrease. Bizarre and reckless behavior, seemingly unpredictable at times, may develop secondary to organic brain syndrome. The patient's personality prior to the brain syndrome will be a major determinant in what type of behavioral problems occur.

(5) Personality Disorder

As any individual grows and matures, systems of coping are developed. The reasonably consistent modes of thinking, feeling and acting become part of the person with certain personality traits or patterns of behavior ingrained. Disorder of personality refers to maladaptive behavior rather than specific symptoms with inefficient and inappropriate responses used repeatedly to deal with stress. The patient is usually unaware of how the behavior interferes with functioning because it is so much a part of their style of life. In this woman's history, behavior patterns are noted prior to the accident. She seems to respond to stress rather badly with uncontrolled emotional upsets, psychophysiological problems, excessive use of alcohol and a generally unstable adjustment. Her behavior under stress was maladaptive and was often unsuitable in attaining her long range goals in life.

(6) Depression in Disguise

The patient presenting with a series of complaints, of an unremitting nature, tending to shift from one organ system to another, is of great concern. The history is the first signal of distress. Depression can be reflected in many symptoms complexes. Both patient and physician can be misled and focus more on the symptom than the patient. Presenting complaints may be fatigue, weakness, malaise, muscular aches, pain, paresthesais, sleep disorder, loss of appetite, weight loss, constipation, flatulence, ammenorrhea, impotence, irritability, etc. Somatic expression of sadness, dejection and hopelessness in depression may occur in any of the body systems. The skilled physician's awareness of his own emotional response is the next clue. If you are sitting with a patient and sense sadness within yourself you can always bet the patient is depressed. Many symptom complexes linked with depression have been described, hiding behind a myriad of apparently organic problems. A familiar example is the low back pain syndrome.

Dynamic Diagnosis

Diagnosis in clinical medicine has a tendency to lay stress on the *what* of illness, bypassing the *why*. In other words, we do not define the patient's predisposition and ability to respond to whatever illness may occur. Perhaps you would allow me to comment on the concept of ego function. It has been a most useful contribution to psychiatry and applies equally well to other areas of medicine. In brief, ego function pertains to the individual's ability to collect information about his internal and external environment, to integrate and correlate information, and to carry out adaptive behavior that is self-sustaining, self protective and pleasurable.

Each stage of development from infancy to old age requires completion of certain defined tasks if healthy coping behavior is to be maintained. Severe tests are made of ego function and it is surprising that we cope as well as we do. Loss of parental support, adjustment problems in adolescence, or interruption of one's life by accident, disease and illness are serious threats demanding adjustment. With a solid base, considerable stress can be tolerated. But everyone has a point of decompensation, beyond which they cannot function effectively.

In this case, the death of the mother at the patient's birth and the absence of her father during her early formative years must be considered a significant determinant. She had problems in establishing a clear identity for herself, developing her own set of values and becoming comfortable in her sexual role. With the first accident she began to adopt a "sick role." This dependent state was natural and understandable at the outset but did not diminish. Indeed, that role may have been condoned and encouraged. In her hospital chart an attorney's letter refers to her application for compensation and state politely that her disability arose from an accident following which she had consulted a great many doctors without any firm diagnosis. The letter went on to say that the lawyer believed her principal difficulty arose from the complication of her symptoms by an underlying toxic plasmosis (sic) and by a history of neurosis following the automobile accident. The patient finally appears to lose the struggle to become self reliant. Her relationship with her physicians become more and more dependent and in such relationships considerable hostility is bound to emerge. Now at age 31 she is single, unemployed, without any direction to her life—unable

to control and direct herself. Self esteem is progressively eroded away as she battles for control with each of her many doctors. From a psychiatric point of view she is struggling against a major depression.

Does this patient have anything working for her? Is there any positive base for recovery? She seems unable to master her life situation and we can expect further decompensation. Since there are recurrent physical problems intervened with her maladaptive style of coping it would seem imperative to have a well coordinated and comprehensive treatment program. After considerable discussion the decision was made to undertake psychiatric treatment, the psychiatrist using any appropriate medical/surgical consultation deemed necessary.

Treatment

After discharge from hospital she was seen for 22 hourly outpatient visits over an eight month period. Treatment was then suspended indefinitely. She was coping effectively. Recurrent physical problems were noted during treatment—neck pain, headache, nausea, vomiting, severe abdominal pain, diarrhea, bronchitis, uneven gait and evidence of excessive drug use. Hospitalization was necessary when it became evident she was taking large amounts of unidentified medications. During an eight day period she was withdrawn from all medications and continued outpatient treatment.

From the history and accounts of her behavior in the hospital, she seemed to be battling with everyone for control. Her unpredictable behavior caused considerable animosity and she was demanding and difficult when she didn't get her way. *This is the most important clue about her primary problem!* The attempt to control other people is a signal of her own inability to control herself. Beneath the bravado and seeming determination to baffle every physician, she is frightened and confused, in a continual state of conflict. Thus, the goal of treatment was to assist in developing stability and a sense of mastery over her own behavior.

This patient could have been treated effectively by the family doctor early in her downhill course by *a structured relationship.* Physicians tend to back off from a complex case and are concerned about damaging a patient in what they consider to be specialized treatment procedure — psychotherapy. A better term might be psychotherapeutic management in which certain technics coupled with the physician's attempt to understand the patient becomes an integral part of treatment. The physician can charge a patient for the time involved in treatment. Scheduling arrangements can be made to see a patient for 45 minutes, charging for time involved. If an office visit costs $7-$8 and on the average lasts 15 minutes, the physician may set a contract with the patient for sessions based on a $25 per hour fee. That's a fair agreement! But it requires that the physician maintain the contract, starting on time and always giving the patient his polite and courteous interest for the agreed time. An attitude of inquiry rather than judgment on the part of the physician will go a long way in providing the necessary approach to treatment and in avoiding pitfalls in management.

If office visits can be set at the same time each week, it structures the relationship. It allows the patient to put off discussion of certain problems until the next regular session and may allay any fear or apprehension about getting further out of control. Rejection is less probable in this type of structured relationship. The relatively haphazard arrangement of seeing the patient "on demand" can be very frustrating. The demand basis may also reinforce the role relationship of the "sick" patient and the treating physician. A definitive and clearly stated agreement with an unusual and difficult patient will decrease uncertainity and make treatment more consistent.

Management of physical complaints is a necessary part of treatment. Physician often sense an underlying emotional conflict in the patient's psychophysiologic symptoms. Exhaustive investigation cannot and should not be conducted for every new complaint, even though the patient may be trying to account for his troubles with some demonstrable physical abnormality. Yet every reasonable effort must be made to investigate the appearance of new problems and re-evaluate past complaints. It's a delicate balance involving clinical judgment. This particular patient developed severe abdominal pain associated with diarrhea which would awaken her from sleep. She would find herself "doubled up in pain and extremely frightened." It was necessary to have an internist and a surgeon evaluate these complaints because there was the possibility of her having some life-threatening problem. A thorough evaluation may be the best reassurance available to the patient. This approach focuses on gaining control of symptoms. The physician, having established a baseline, knows where he stands with the patient and can interpret new complaints and new findings in context.

With a frightened individual having recurrent physical problems and damaged self esteem, one must recurrently define what can be done—*limit setting.* It may be necessary to place controls on a patient and contact the family or other resources, stating what your treatment objectives are in an honest and direct manner. Limit-setting helps the patient develop a sense of mastery. Just as one might place certain expectations and controls on your own teenager, so too it may be necessary to limit certain behaviors when the patient's controls are broken down.

Although this woman is 31, it was necessary to involve the father and stepmother in the treatment program. At one point she was taking a large

number of drugs, breaking scheduled appointments and not carrying out certain recommendations. She was out of control! When the father was contacted and the case discussed in detail with the parents they were able to work very closely with the physician. Their participation helped to stabilize the patient and aid a return to a more effective level of functioning. Direct intervention with the family may be an expression of concern and caring. In this case, the patient responded to the family's interest and accepted increasing responsibility for her own behavior.

It is necessary to look beyond any presenting complaint to the setting in which the patient functions. Her behavior in taking the medication was obviously self destructive and related to loneliness, anger and depression. The limit setting demonstrated that other people were concerned about her welfare. As physicians, we must use every possible resource available.

The physician must have *realistic goals*. He and the patient have a mutually shared objective in the treatment program. In this woman's case, there was recurrent evidence that she did not wish to delve into the depths of her unconscious. She was threatened by the strong and poorly controlled feelings of guilt, rage and anxiety brewing just below her awareness. At one point in the treatment program she said: "The mind is the only private thing left that someone can't take from you. My thoughts are confidential and not to be shared with anyone outside the family." One could label this resistance to treatment. But in view of her primary problem with controls, the added stress of unveiling the repressed material was not a realistic goal to attain. I was quite content to accept this limitation placed on treatment as long as she was able to return to a useful and satisfying way of life. At the time treatment was suspended she was working fulltime and managing her own affairs appropriately.

QUESTION: Are you suggesting a non-psychiatric physician could handle this patient?

ANSWER: Yes! Perhaps better by the family doctor or primary physician than a psychiatrist assuming the physician focuses on the total situation in which problems develop. Such an approach makes everything more understandable and the situation more manageable. Sometimes the physician feels he has to get everything done in one session, an evaluation establishing a solid data base can go on over two, three or even four sessions. Taking the time and allowing the patient to discuss the problems in a structured relationship is still the invaluable therapeutic aid our predecessors used as consultant. The physician treating the patient can always call for assistance in "reading" the patient's behavior just as he may request help from the radiologist to read a skull series.

QUESTION: Would you use antidepressant drugs with this patient?

ANSWER: No! And I would comment briefly on that decision and also make a brief statement about the use of such drugs in other patients. Depression is difficult to define. It describes a mood state which can be quite natural, a symptom related to other acute and chronic disorders and a disease state in itself. It wears many faces. A significant number of surveys have shown depression underlying physical complaints in striking percentages.

In this woman's case I did not use drugs for two reasons. She has a long pattern of difficulty and a style of behavior which maintains her *status quo*. From my standpoint this falls into the category of personality or character disorder describing the relatively persistent conduct of the patient (in terms of her thinking, feeling and acting). In my experience with antidepressants they have no significant contribution to make in personality disorder. But I should add that someone with this type of problem can decompensate or react to loss requiring intervention with pharmacotherapy.

Most importantly every physician must take into account the widespread prevalence of this state—a condition called depression. The physician should make every attempt to define his own understanding of this state. When the diagnosis of depression is made, much can be done to benefit the patient. It is possible to use psychotherapeutic approaches alone and in combination with drugs. The tricyclic group is especially effective in treating depression. Amitryptyline, imipramine, desipramine, nortriptyline, protriptyline are all of use. The physician using the antidepressant with which he is most familiar, in my particular practice, amitryptyline and imipramine are used extensively. Many other clinicians have their particular approaches and there is some suggestion that desipramine, nortriptyline and protriptyline may have a more rapid onset of action.

Let me use amitryptyline as an example in administering drugs. Antidepressants have a lag effect, a period for the onset of action which may be as long as three weeks. Physician and patient must be prepared to wait at least this long for the optimal effect of the drug. It is also necessary to use an adequate therapeutic dose. The minimum therapeutic daily dose for the average patient should not be lower than 100 mg and some clinicians would place it at 150 mg per day. Geriatric doses should be regulated appropriately, of course. Treatment at full dose must be continued for a substantial period of time and at least one month beyond the disappearance of acute symptoms and signs of depression. At that point the dosage can be decreased by 1/2 or 1/3 and maintained for a further period of several months.

This is an extremely important area when the physician has something to offer the patient.

Though this patient was not given antidepressant drugs I do wish to stress the diversity of clinical manifestations in depression and the fact that it goes unrecognized in medical practice too often. There is a vast literature on the subject and if anyone is interested I will be glad to provide more material.

QUESTION: Might group psychotherapy be considered in this case?

ANSWER: Yes! That's an interesting question to have arise here because most people consider the group method a highly specialized treatment procedure. I would like to point out that certain components of group practice can be learned readily and practiced most effectively by the nonpsychiatric physician. Indeed, it adds an interesting dimension to treatment and management of difficult problems. Medical schools and medical practice have maintained a rather fixed 1:1 treatment relationship. Physicians are often unfamiliar and uneasy with this approach. Group psychotherapy is primarily indicated for individuals having difficulties in their interpersonal relationships. It can be an invaluable addition to the physician's treatment program and applied to special groups such as arthritics, diabetics, prenatal patients, etc. who have particular problems and concerns which they can have understood very adequately by other patients. Group therapy had its roots in a tuberculosis hospital. In 1905 a Boston internist named Pratt grouped his patients into class-type settings. They were seriously ill, in considerable discomfort and dispairing about their future. The results with his patients led on to the early applications of the group technic in North America.

QUESTION: Are there any inherent dangers when the difficult type of patient that has been discussed here develops physical complaints?

ANSWER: Yes! The physician needs a comprehensive data base from the outset and must be continually alert to the emergence of new symptoms or the continuance of old problems. Psychogenic complaints do seem to vary in relation to environmental pressures. When something is unremitting and seemingly unrelated to changes in the patient's environment it is imperative to review the whole picture very carefully.

A Final Comment

This particular patient has demonstrated an ability to put her life back in order and to develop a sense of control and accomplishment in managing her own affairs. Assuming that she does not place herself in a position of major stress, it is conceivable that she will not have further trouble. Through treatment has been suspended indefinitely, it does not mean she is over her depression. But at the present time, she is winning the struggle and has developed a good relationship with her parents, is working consistently and rebuilding some of the damaged self esteem. She has the ability to project into the future and is not overwhelmed by past failures. She may require further treatment. Physicians involved with such a patient must make a long time commitment remaining available to the patient.

Management should pivot around one physician. If the patient is to remain a person and not be fragmented or compartmentalized, someone must work actively at putting the whole picture together. As physicians, we may be presented with a puzzle and hold certain pieces, contributing to the problem solving. But, we must talk with others holding pieces of the puzzle and ultimately, direct responsibility to one individual. *By the way, if she happens to consult you, please give me a call!*

REFERENCES

[1] Ireland, Patricia, Sapira, Joseph D., and Templeton, Bryce: Munchausen's Syndrome, Am. J. of Medicine, 43:579-591, 1967.

[2] Spiro, Herzl R.: Chronic Factitious Illness. Arch. Gen. Psychiatry, 18:569-579, 1968.

[3] Asher, R.: Munchausen's Syndrome. Lancet, 1:339-341, 1951.

PICKER Medical Products

3890 ELM STREET — TEL. 388-5731 — DENVER, COLORADO 80207

Offices also in:
Colorado Springs, Colorado
2236 Glenwood Circle, 635-8768

Salt Lake City, Utah
21 Kensington Street, 487-7519

Albuquerque, New Mexico
113 Sierra Dr., S.E., 255-1288

Medical X-Ray Equipment

Accessories & Film

Nuclear Equipment

Pulmonary nocardiosis*

Diagnostic and therapeutic problems in its treatment

Marshall G. Nims, MD, James L. Karel, MD, and Donald W. Fink, MD, Denver, Colorado

An unusual case report of a rare disease.

NOCARDIOSIS IS UNIFORMLY considered a serious disease often presenting with pulmonary symptoms and findings suggestive of tuberculosis. Sulfadiazine remains the most useful drug but treatment is not always successful and the organisms may disseminate widely throughout the body often with fatal results. Recently we had the opportunity to study a case in which improvement occurred when sulfisoxazole was used in the face of a serious drug reaction to sulfadiazine.

CASE REPORT

A sixty-one-year-old white housewife was first seen on June 17, 1965, at which time the history and physical examination revealed no serious illnesses, injuries or operations. Her weight had remained stable. She did not smoke and used alcohol moderately. Menopause had occurred about ten years before without complications. She had noted occasional mild blanching and numbness of the fingers on exposure to cold. No trophic changes were observed. A chest film showed a calcified primary complex on the right with a few calcified hilar nodes on the left.

In April of 1967, she complained of episodic giddiness, together with some pain in the right shoulder. Laboratory studies were again normal and the chest film unchanged. In the latter part of April, 1967, increasing pain in the right shoulder became resistant to symptomatic medications and several injections of steroid were given into the subdeltoid bursa. These few injections were not felt to result in significant systemic steroid absorption. On May 23, 1967, an upper gastrointestinal series showed a small sliding hiatus hernia.

*From the Department of Internal Medicine, Saint Luke's Hospital, Denver.

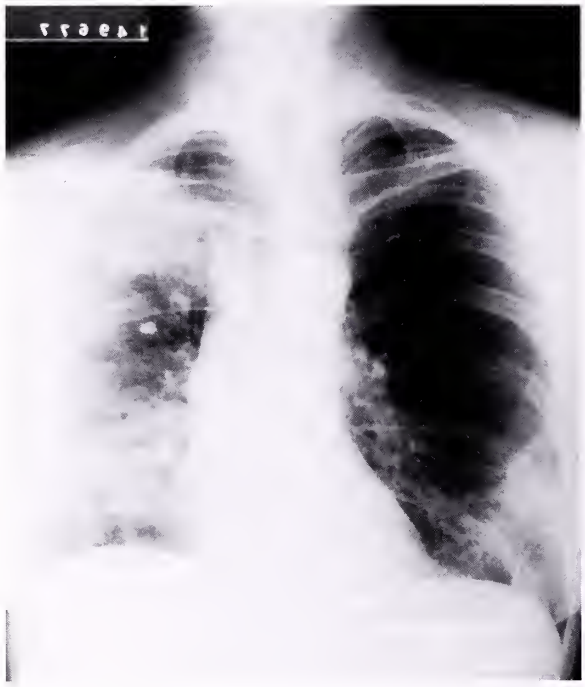


Fig. 1. 6-20-68: Dense infiltrates are present in both lungs consistent with bronchopneumonia.

During the week of May 20, 1968, the patient complained of a persistent sore throat and tetracycline was prescribed. However, she continued to feel ill and on June 20, 1968, a chest film revealed infiltrates consistent with bronchopneumonia involving both lungs (Fig. 1). The patient was hospitalized. Physical examination was not remarkable, including examination of the lungs. Laboratory studies revealed a leukocyte count of 9,200/mm^3 with a normal differential; the hemoglobin was 12.9 g/100 ml and the sedimentation rate 45 mm/hr. Cold agglutinins were negative; the serum glutamic-oxalacetic transaminase (SGOT) and urinalysis were normal. The total serum protein was 7.0 g/100 ml; the electrophoretic pattern showed 3.3 g/100 ml albumin; 0.4 g/100 ml alpha-1 globulin (normal, 0.1-0.5); 1.3 g/100 ml alpha-2 globulin (normal 0.4-1.1); 1.4 g/100 ml beta globulin (normal, 0.5-1.2); 0.6 g/100 ml gamma globulin (normal, 0.6-1.8). The RA

factor was negative; the VDRL was non-reactive and several LE preps were negative. The tuberculin, coccidioidin and histoplasmin skin test were negative.

Bronchoscopy was negative and cultures taken during this procedure grew only normal flora. On July 1, 1968, the patient was discharged to her home untreated with a tentative diagnosis of "unresolved viral pneumonia," but she failed to improve. Low-grade fever continued together with extreme lassitude, generalized myalgia and moderate non-productive cough without hemoptysis. She was readmitted to the hospital on July 18, 1968; a chest film showed some improvement (Fig. 2). On July 19, a right thoracotomy was performed under general anesthesia and a lung biopsy was taken. She was discharged home pending the results of the study of the biopsy.

Microscopic sections of the lung tissue showed non-specific granulomatous disease. A portion of the tissue was macerated and cultured. Two colonies of Nocardia asteroides were isolated on July 30 and extracts from the colonies were injected into mice. On August 13, the mice were sacrificed and multiple granulomatous lesions containing Nocardia asteroides were discovered (Fig. 3).

Upon readmission, physical examination remained negative. The chest x-ray showed a new area of involvement. Two urine specimens were cultured for Nocardia and were found sterile. Serum protein electrophoresis was within normal limits. On August 14, the patient was given one gram of sulfadiazine orally every four hours. On August 15, a venous intracatheter was inserted and crystalline penicillin, 20 million units in 1000 ml 5% glucose containing 20 mg. Heparin sodium, was given continously every twelve hours. On August 23, a slight rash was noted over the chest and legs. At this time there was a fever of 101° F orally. When penicillin was discontinued, the rash faded slightly but did not disappear. On August 25, the leukocyte count had fallen to 4,100/mm^3 with a normal differential; the count continued to fall to 2,900/mm^3 by the thirteenth day of treatment; the sulfadiazine was then stopped because of the risk of further leukopenia. Twenty-four hours later the evidence of drug reaction had begun to subside and on September 2, the white blood cell count was 4,400/mm.^{3} She started on tetracycline 500 mg. four times daily and was discharged from the hospital.

The patient's condition slowly improved. Because of gastrointestinal intolerance, tetracycline was stopped and doxycycline monohydrate, 200 mg. daily was substituted. Serial chest films revealed fading of the densities until December 1968, when a new lesion was noted in the right lung medial to the biopsy site. She continued to have a good appetite, was afebrile, and had no cough. The hemoglobin was 12.2 g/100 ml, the hematocrit 38%, and the white blood cell count 5,700/mm^3 with 70% segs, 19% lymphs, 2% monos,

Fig. 2. 7-18-68: Clearing of the right upper lobe lesions with consolidation of the right middle lobe segment and progression of right lower lobe infiltrate have occurred in the interim. The lesions in the left lower lobe have cleared and a new site of involvement is seen. No cavities or nodules are identifiable.

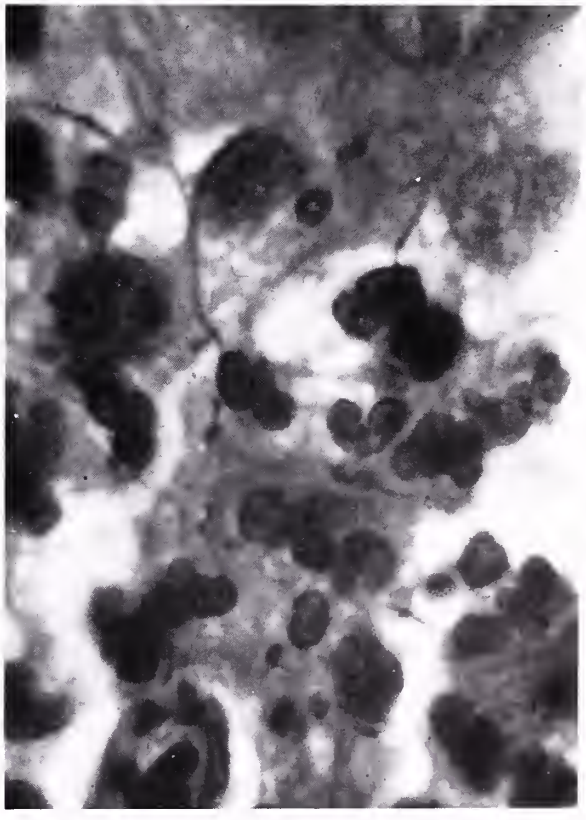


Fig. 3. A photomicrograph reveals the typical Nocardia forms.

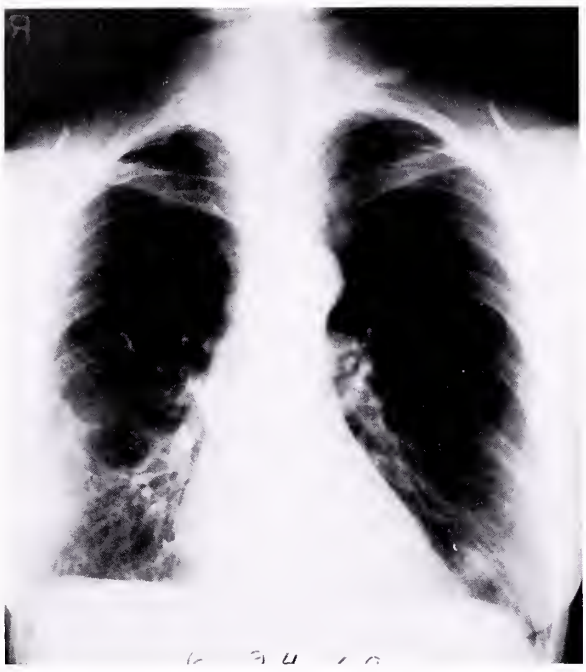


Fig. 4. 6-24-69: The lungs are free from active infiltrates and only interstitial scarring remains.

7% eos and 2% basos. Urinalysis was negative. The blood urea was 7 mg/100 ml, the blood sugar 84 mg/100 ml, the SGOT normal and the sedimentation rate 9 mm/hr.

It was obvious that therapy with doxycycline monohydrate had been ineffective and that some form of sulfa must be tried even at some risk. Since sulfisoxazole may be effective in lower dosage than sulfadiazine, it was started at a dose of 10 mg. every six hours. Marrow from the iliac crests was removed and frozen, to be used in case of bone marrow suppression by the drug. Leucocyte counts were repeated before each dose; these remained between 3,500 and 5,500/mm.^{3} The dosage was gradually increased and she was dismissed January 11, 1969, on 250 mg. of sulfisoxazole every six hours. By June 24, 1969, the chest film showed only residual interstitial scarring (Fig. 4).

On October 15, 1969, there was evidence of recurrence of the infiltrate in the left upper lobe. The dosage of sulfisoxazole was cautiously increased to give five grams daily without incident. By November 14, 1969, the infiltrate appeared smaller (Fig. 5). A series of chest films taken since then showed progressive resolution; the last film taken May 15, 1970, appeared stable with only residual scarring at the right base and pleural scarring in the costophrenic angle (Fig. 6). Laboratory tests taken May 26, 1970, revealed a hemoglobin of 13.4 g/100 ml; the leukocyte count was 5,000/mm^3 with a normal differential and the sedimentation rate was 5 mm/hr. Urinalysis was negative. The patient remains clinically well with no complaints taking five grams of sulfisoxazole daily.

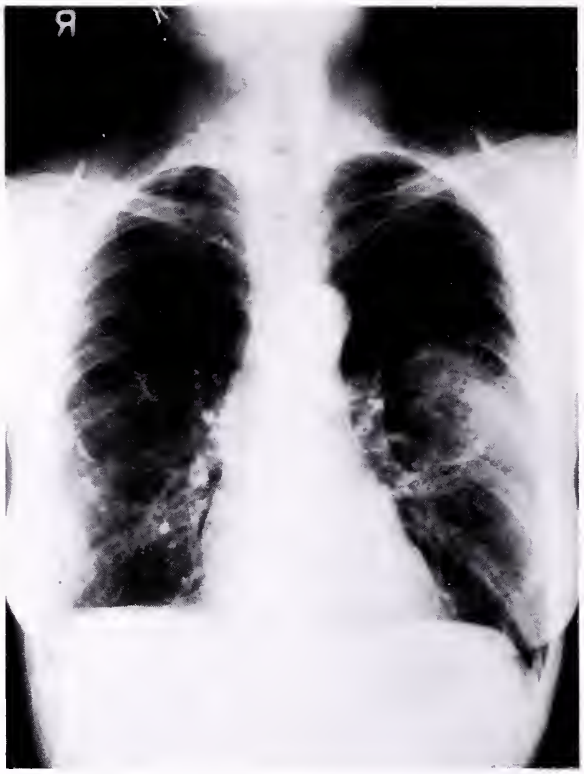


Fig. 5. 11-14-69: The appearance of an infiltrate in the left upper lobe indicates progression of the disease process.

Fig. 6. 5-15-70: Apparent complete resolution of the left upper lobe infiltrate has occurred. Scarring persists in the right lung base and costophrenic angle.

Discussion

Nocardiosis is a disease produced by the members of the genus Nocardia, with Nocardia asteroides, the predominant human pathogen. On occasion Nocardia brasiliensis has been implicated in human illness.[1] The genus Nocardia is a member of a large group of organisms known as the Actinomycetales, which are transitional forms with certain features distinguishing them from true bacteria and true fungi. In 1888 the disease was first described by Nocard who was studying farcy, or glanders, in cattle on the Island of Guadalupe. The site of primary involvement is usually the lungs. Following the initial infestation, the disease may remain localized or become disseminated. Complications due to body-wide dissemination develop with delay in reaching the diagnosis and lack of early treatment.[2] Nocardia will grow fairly well on most laboratory media, but do so extremely slowly, delaying accurate diagnosis as the cultures are often disposed of before the colonies appear.[3] Difficulties have been encountered in developing satisfactory antigens for serologic tests, but antisera of rabbit origin have been prepared for agglutination and precipitant testing, and these have shown a moderately high degree of specificity which should facilitate diagnosis.[4]

This condition, originally deemed extremely rare in either localized or disseminated form, has been increasing in incidence. Part of this increase may be due to greater facility in laboratory recognition. However, at least part of the increase is real and as one author stressed, "Little attention has been given to nocardiosis as one of the penalties of sustained steroid therapy as well as its recognition as an infection with a probable association with neoplastic disorders."[5]

An extensive review of the literature through 1960 by Murray produced a number of interesting statistical facts.[5] All age groups are involved with the range extending from four months to eighty-seven years. Of these cases, 75 per cent occurred in males. The overall mortality found in the review was 54 per cent. With the advent of sulfonamide therapy in 1937 came a significant alteration in the mortality rate; the pre-sulfonamide period mortality was 75 per cent; the post-sulfonamide therapy mortality rate declined to 46 per cent. An increasing number of reports indicate that nocardiosis occurs in association with neoplasms, with death eventually being attributed to neoplasm rather than the nocardiosis. This may be a cause of a false improvement in the mortality rate. The great majority of the cases are pulmonary and 31 per cent remain confined to the respiratory tract. Of equal importance, generalized disease is seen in 31 per cent of the cases. Five per cent involvement of the central nervous system alone was found with a slightly greater number in which both the pulmonary and central nervous systems were involved. Sole involvement of the skin and subcutaneous tissues excluding the entity of Madura Foot occurred in 14.5 per cent of the total cases. In order of frequency of occurrence, the sites of affliction were: lung, skin, subcutaneous tissue, brain, pleura, spleen, kidney, heart, liver, bone, joints, peritoneum, lymph node, adrenal gland, and gastrointestinal tract. In many instances, nocardiosis appeared in association with other diseases, particularly when steroids had been utilized.[5] Leukemia, Hodgkin's Disease, lupus erythematosis, oleothorax, asthma, pulmonary alveolar proteinosis, tuberculosis, and pemphigus are among the primary disorders involved secondarily with nocardiosis.[6,7,8,9]

Our case presented several interesting features. At no time has any chronic systemic disease been disclosed and she has never received any significant amounts of steroids. In spite of an obvious drug sensitivity to sulfadiazine, the patient was later able to tolerate sulfisoxazole after carefully observed administration in gradually increasing doses. However, the patient appeared to improve on doses of sulfisoxazole not expected to yield adequate therapeutic blood levels. This suggests that some other mechanism of "containment" or acquired immunity is functioning in maintaining the patient fortunately in this period of "remission." Because of the seriousness of nocardiosis and the overwhelming evidence that sulfa drugs are the most effective agents in the treatment of this disease, the removal and freezing of bone

marrow in the event of a serious hematologic reaction is a recommended procedure.

Summary

A 61-year-old housewife was diagnosed by lung biopsy as having pulmonary nocardiosis. Initial treatment with sulfadiazine caused fever, rash, and a rapid fall in the white blood count. These symptoms subsided after withdrawal of the drug. Tetracycline and doxycycline monohydrate were not helpful, for roentgen evidence of spread appeared under this therapy. Because of the gravity of the situation, sulfisoxazole was administered after marrow was withdrawn and frozen as a protective measure. Clinical and roentgen improvement occurred in spite of initially low serum concentrations of the drug, which was increased in dosage and continued for twenty-one months while the patient remained symptom free. •

ACKNOWLEDGMENTS

The writers thank several individuals for their valuable contributions to this study. Surgery and bronchoscopy were performed by William B. Condon, M.D. Hematologic consultation and bone marrow technic were provided by Harry P. Ward, M.D., Veterans Administration Hospital, Denver, Colorado. Roger S. Mitchell, M.D., University of Colorado Medical Center, and R. Dixie Baines, Jr., M.D., furnished consultation in pulmonary and infectious disease. Bacteriologic studies were performed by Mr. Robert G. DeBoer, Department of Pathology, Saint Luke's Hospital, Denver, Colorado.

REFERENCES

1 Wilson, J. W., Plunkett, O. A.: The Fungus Diseases of Man, 1st ed., U. of California Press, Berkeley and Los Angeles, Calif., 1965, p. 143.
2 Lerner, G., Tarasides, G. C., Jenney, F. S.: Nocardiosis: the importance of early diagnosis and treatment. Amer. Rev. Resp. Dis. 1967, 96, 494.
3 Hathaway, M., Mason, K. N.: Nocardiosis: study of 14 cases. Am. J. Med., 1962, 32, 903.
4 Kingsbury, E., Slack, J. M.: A polypeptide skin test antigen from nocardia asteroides. Amer. Rev. Resp. Dis., 1967, 95, 827.
5 Murray, J. F., Finegold, S. M., Froman, S., Drake, W. W.: The changing spectrum of nocardiosis. Am. Rev. Resp. Dis., 1961, 83, 315.
6 Anderson, B. R., Ecklund, R. E., Kellow, W. F.: Pulmonary alveolar proteinosis with systemic nocardiosis. J.A.M.A., 1960, 174, 28.
7 Burbank, B., Morrione, G. T., Cuttler, S. S.: Pulmonary alveolar proteinosis and nocardiosis. Am. J. Med., 1960, 28, 1002.
8 Holdway, M. D., Kennedy, J., Ashcroft, T., Kay-Butler, J. J.: Pulmonary nocardiosis in a 3-year-old child. Thorax, 1967, 22, 375.
9 Taylor, C. E., Schwartz, R., Madoff, I. M.: Nocardiosis associated with a giant pleurolith secondary to long-standing oleothorax. Ann. Intern. Med., 1967, 66, 960.

Ulcer Re-lief!

Dicarbosil®
ANTACID

Your ulcer patients and others will confirm it. Specify DICARBOSIL 144's—144 tablets in 12 rolls.

ARCH LABORATORIES
319 South Fourth Street, St. Louis, Missouri 63102

You Can Order

REPRINTS

of any feature or advertisement appearing in

The Rocky Mountain Medical Journal.

Orders must be placed within 15 days after date of publication. Minimum charge applies for 100 copies or less.

The cost is very reasonable.

For further information write to—

The Rocky Mountain Medical Journal

1809 East 18th Avenue

Denver, Colorado 80218

A
BUILDING BLOCK
TO RECOVERY

As adjunctive therapy
DOUBLE STRENGTH
Orenzyme® Bitabs One tablet q.i.d.
Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units; equivalent in tryptic activity to 40 mg. of N.F. trypsin

Reduces swelling
Hastens healing
Speeds recovery

trauma

One tablet q.i.d.

Indicatons: When used as adjunctive therapy for the rapid resolution of inflammation and edema, good results have been obtained in:
□ Accidental Trauma □ Postoperative Tissue Reactions.
Other conventional measures of treatment should be used as indicated. In infection, appropriate anti-infective therapy should be given.
Contraindications: ORENZYME BITABS should not be given to patients with a known sensitivity to trypsin or chymotrypsin.
Precautions: It should be used with caution in patients with abnormality of the blood clotting mechanism such as hemophilia, or with severe hepatic or renal disease. Safe use in pregnancy has not been established.
Adverse Reactions: Adverse reactions with ORENZYME have been reported infrequently. Reports include allergic manifestations (rash, urticaria, itching), gastrointestinal upset and increased speed of dissolution of animal-origin surgical suturas. There have been isolated reports of anaphylactic shock, albuminuria and hematuria. Increased tendency to bleed has also been reported but, in controlled studies, it has been seen with equal incidence in placebo-treated groups. (See Precautions.) It is recommended that if side effects occur medication be discontinued.
Dosage: One tablet q.i.d.

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144
TRADEMARK: BITABS U.S. PATENT NO. 3,004,893 9/70 0.009A 161

Orenzyme® Bitabs

Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units; equivalent in tryptic activity to 40 mg. of N.F. trypsin

The causes of vaginitis are multiple

Trichomonads... monilia... bacteria
You can depend on AVC—comprehensive therapy that combats all three major vaginal pathogens, alone or in combination.

AVC
Cream (aminacrine hydrachlaride 0.2%, sulfanilamide 15.0%, allantain 2.0%)

Suppositories (aminacrine hydrachloride 0.014 Gm., sulfanilamide 1.05 Gm., allantain 0.14 Gm.)

Contraindications: Known sensitivity to sulfonamides.
Precautions/Adverse Reactions: The usuol precoutions for topical and systemic sulfanomides should be observed because of the possibility of absorption. Burning, increosed local discomfort, skin rash, urticaria ar other manifestatians of sulfanamide toxicity are reasons to discontinue treatment.
Dosage: One applicotorful or one suppository introvoginally once or twice daily.
Supplied: Cream – Four-ounce tube with or without applicotor. Suppositaries – Box of 12 with opplicator.

TRADEMARK: AVC AV-104 2/71 Y-149

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC
PHILADELPHIA, PENNSYLVANIA 19144

AVC
The treatment is singular

A medical potpourri

by Andrew M. Babey, MD, Las Cruces, New Mexico

11. "This is traditionally considered as consistent a feature of HPT as hypercalcemia. On the contrary, in our experience (and that of some others), hypophosphatemia is observed in less than half the cases. This is not surprising when one considers the pronounced circadian rhythm exhibited from estimations based on serum samples drawn without regard to time, and the effects of PTH in tending both to increase (by increasing bone resorption) and to decrease (by increasing renal excretion of phosphate) serum phosphorus." KEATING, Raymond F., Jr., The Clinical Problem of Primary Hyperparathyroidism, The Medical Clinics of North America, March 1970, p. 521.

12. "The specific signs of osteitis fibrosa cystica are most easily recognized in the skull (disappearance of the tables and ground-glass demineralization) . . . the hand (demineralization and subperiosteal resorption) . . . and the jaws (disappearance of the lamina dura and metaplasia of cancellous bone). Occasionally, the only roentgenographic finding may be a solitary bone cyst." Ibid., p. 521.

13. "Except for skeletal roentgenograms, all diagnostic procedures listed may at times give false-negative responses in proved HPT or false-positive ones in patients with other disorders. For this reason, differential diagnosis of hypercalcemia must be based on all the clinical evidence available and not on the results of laboratory tests alone. When there is particular reason to consider malignancy, myeloma, or sarcoid, treatment with glucocorticoids for two weeks may cause the hypercalcemia to disappear in myeloma or sarcoid with virtual certainty and in about half the cases of malignancy." Ibid., p. 524.

14. "If, contrary to the prevailing view, it is eventually shown that, in many cases, HPT does not progress and that longstanding mild or borderline hypercalcemia in such circumstances poses little or no threat to health, then to the other medical problems of HPT will be added the ultimate one—that of finding reliable procedures to determine which patients will progress and therefore need surgical treatment and which patients will not progress and therefore do not need it." Ibid., p. 527.

15. "Gout can begin at any age, although it does usually begin between 40 and 60. But it occurs nine time oftener in men after age 35. Its clinical features are the same at age 18 or 80; recurring acute arthritis with complete remission. Upon this pattern, constructed from a carefully recorded history, should diagnosis rest. The terms "atypical gout" and "gouty diathesis" should be discarded as misnomers." BARTELS, Elmer C., Consultant, July-August, 1970, p. 18.

16. "And serum uric acid levels can be within normal limits during and for weeks after an acute attack. In one study of 400 cases of acute gout, 40 per cent had consistently normal serum uric acid values." Ibid., p. 19.

17. "Since gout predates diabetes—almost never the other way around—I suspect it's a precursor of diabetes. From calculations based on the duration of gout in every member of the group from 1 to 55 years—apparently the longer gout persists the greater the likelihood of diabetes." Ibid., p. 19.

18. "The drug that comes to the minds of most doctors confronted with acute gout is colchicine. Yet, I haven't prescribed colchicine for years. Here's why: To relieve the severe pain of acute gout, colchicine invariably produces nausea, vomiting, diarrhea, and general discomfort. Many patients say afterwards they prefer the gout to colchicine's side effects." Ibid., p. 19.

19. "Statistics to support colchicine as a prophylactic drug simply are not impressive." Ibid., p. 19.

20. "Most effective for acute gout is phenylbutazone (Butazolidin), the anti-inflammatory, antipyretic analgesic. When promptly administered in a dose of 200 mg. four times daily for one or two days, it almost uniformly relieves pain within hours without troublesome side effects. For even more prompt relief of joint distress, I sometimes add 100 units of ACTH (corticotropin) intramuscularly." Ibid., p. 19-20.

21. "I think we have overemphasized the value of intellectual qualities and grossly underemphasized the value of the qualities of humanity which women possess to such a high degree. I hope I shall not be taken for an anti-intellectual when I say that intellect without humanity is not good enough, and that what the world is suffering from at the present time is not so much an overabundance of intellect as an insufficiency of humanity. Consider men like Lenin, Stalin, and Hitler. These are the extreme cases. What these men lacked was the capacity to love. What they possessed in so eminent a degree was the capacity to hate. It is not for nothing that the Bolsheviks attempted to abolish the family and masculinize women, while the Nazis made informers of children against their parents and put the state so much before the family that it became a behemoth which has well-nigh destroyed everyone who was victimized by it. LEE, Donald W., and MOYNIHAN, William T., Using Prose: Readings for College Composition, Dodd, Mead & Company, 1963, p. 264.

22. "The world is in a mess. Men, without any assistance from women, have created it, and they have created it not because they have been failed by women, but because men have never really given women a chance to serve them as they are best equipped to do—by teaching men how to love their fellow men." Ibid., p. 265.

23. "There is an old Spanish proverb which has it that a good wife is the workmanship of a good husband. Maybe. But of one thing we can be certain: a good husband is the workmanship of a good mother. The best of all ways in which men can help themselves is to help women realize themselves. This way both sexes will come for the first time fully into their own, and the world of mankind may then look forward to a happier history than it has thus far enjoyed." Ibid., p. 265.

National Ambulatory Medical Care Survey

The National Center for Health Statistics in the Department of Health, Education, and Welfare, as part of its continuing program to provide data on the health status of the American people, is currently planning the National Ambulatory Medical Care Survey (NAMCS). The purpose of the NAMCS is to collect objective, quantitative information which can be used to describe the types of ambulatory patients seen by physicians, the nature of the patients' problems and the resources for their care. This information is needed by leaders in medicine and related professions for planning and organizing health services, for planning efficient utilization of health facilities and manpower, and for determining modifications in medical education.

The survey will involve a national sample of physicians who will be requested to provide data concerning a small number of the ambulatory patients they see. When the NAMCS is in full operation (sometime in 1972), about 3,000 physicians each year will be providing data on an estimated 240,000 ambulatory patient visits. Physicians selected to participate in the survey will provide information concerning a sample of the patients that they see during a two-day period in each of four consecutive calendar quarters. All physicians will be replaced by new sample physicians after participating for four quarters. The types of data the survey will collect include age, sex, and medical problems of patients plus treatment prescribed and laboratory tests performed for patients. Of course, all data will be held completely confidential and used only for statistical purposes.

Ambulatory medical care is by far the largest segment of the American health services system in terms of prevalence and volume. Yet, little has been done on a national scale to gather reliable information for use in planning and research. The dearth of information on this subject has led leaders in the medical profession to persuade the National Center for Health Statistics to undertake the National Ambulatory Medical Care Survey. This information will complement the health data already being obtained by the Center through its ongoing national surveys: the Health Interview Survey, Health Examination Survey, and Hospital Discharge Survey. The success, of the NAMCS, of course, will depend on the cooperation of practicing physicians who are the major source of ambulatory medical care data.

The American Medical Association and numerous other major medical associations have expressed their support for the NAMCS and have provided advice and consultation in its development. With the cooperation of practicing physicians the survey will provide very valuable data for documenting the health status of the American people and for informing public and private policy decisions.

The pain of arthritis

relieved with MEASURIN® q. 8h. dosage

Double-strength Measurin timed-release aspirin offers a new kind of control for your arthritic patients. Each 10-grain tablet has over 6,000 microscopic reservoirs that release aspirin at a controlled rate—some right away and some later on. This means—fast relief, followed by long lasting relief. Throughout the day, Measurin gives your patients freedom from a 4-hour dosage schedule. Measurin can help your patients get a good night's sleep, uninterrupted by the need for an extra dose of aspirin. And, taken at bedtime, it also helps ease morning joint discomfort and stiffness.

For Professional Samples write:
Breon Laboratories Inc.
Sample Fulfillment Division
P.O. Box 141
Fairview, N.J. 07022

BREON LABORATORIES INC.
90 Park Avenue, New York, N.Y. 10016
Subsidiary of Sterling Drug Inc.

MEASURIN®
TIMED-RELEASE ASPIRIN

ECONOMICAL • EFFECTIVE • LONG LASTING PAIN RELIEF
Dosage: 2 tablets followed by 1 or 2 tablets every 8 hours as required, not to exceed 6 tablets in 24 hours. For maximum nighttime pain relief and to help relieve early morning stiffness, 2 tablets at bedtime.
Available: Bottles of 12, 36 and 60 tablets.

Premature atrial contractions--

A look at those aberrantly conducted

Spencer B. King, III MD, Edward R. Dorney, MD, and Fred W. Schoonmaker, MD, Denver*

WIDE, BIZARRE APPEARING QRS complexes occurring on the electrocardiogram are frequently interpreted as ectopic ventricular contractions. It is important from a diagnostic and therapeutic standpoint to recognize that such complexes may represent premature atrial contractions with aberration of ventricular conduction. In a coronary care unit, the occurrence of aberrantly conducted atrial beats may be relatively benign, while premature ventricular contractions could be more ominous and should be treated with antiarrhythmic drugs. Aberrantly conducted atrial fibrillation beats usually accompany a fast rate which is an indication for increasing digitalis, while frequent premature ventricular contractions may be an indication for reducing digitalis. The classic criteria used to identify aberrant conduction of the QRS complex have been the following:

1. The presence of preceding atrial activity.
2. Right bundle branch block pattern in lead V1.
3. The aberrant ventricular complex terminates a short cycle preceded by a long cycle.[1-4]

These criteria, however, are not always helpful, especially when preceding atrial activity is not evident. Mariott has proposed two new criteria by which aberrant complexes can be identified in lead V1 without evident preceding atrial activity or even in the presence of supraventricular arrhythmias.[5,6] These new criteria are:

1. A triphasic pattern of the QRS complex in V1 (that is RSR' pattern) which he believes favors aberrancy in a ratio of 11:1.
2. An initial contour (first 0.02 seconds) of the QRS which is identical to that of the normal complexes. This finding, he believes, favors aberrancy in a ratio of 25:1.

The present study was undertaken to determine the incidence of atrial premature contractions with aberrant ventricular complexes in a general hospital population and to evaluate how often the new criteria were of help in distinguishing them from true ectopic ventricular contractions.

Results

Of 1,200 tracings examined, seventy contained singly occurring bizarre complexes. Fifty of these complexes were identified as originating in the ventricle by the absence of preceding atrial activity and the presence of a compensatory pause. Fixed coupling, interpolation of bizarre ectopic beats during a regular sinus rhythm, and a dissimilar initial 0.02 seconds of the QRS in lead V1 were also helpful in identifying ventricular ectopics.

Sixteen of the remaining twenty tracings contained easily seen premature atrial contractions with aberrant ventricular conduction. The other four with atrial fibrillation or flutter were not included because premature atrial activity could not, of course, be identified. These sixteen tracings were then examined to determine the validity of criteria which could be used when atrial activity was not evident. (Table 1)

*Dr. King and Dr. Schoonmaker are in the Cardiovascular Laboratory, St. Luke's Hospital, Denver. Dr. Dorney is in the Emory University Clinic, Atlanta, Georgia.

TABLE 1

Sixteen tracings with obvious premature P waves and aberrant ventricular conduction.

1. Long cycle followed by a premature beat..	100%
2. Right bundle branch block	81%
3. Identical 0.02 vector	50%
4. Triphasic (RSR') pattern in V1	44%

The results closely resembled those found by others with the exception of the triphasic (RSR') pattern, which was seen in 70 per cent of Mariott's tracings, but which was present in only 44 per cent of the tracings used in this study.

Discussion

The reason for aberrant ventricular conduction of premature atrial contractions has been investigated with the use of microelectrodes in dog hearts by Moe[7] and in human subjects using paired pacing from intra-atrial catheters.[8] These experiments indicate that the relative refractory period of the right bundle is longer than that of the AV node, the His bundle, or the left bundle. Therefore, when an impulse traverses the AV node and main His bundle and arrives at the separation of the right and left bundles, conduction may occur normally through the left bundle, but not through the right, which is still in the refractory state, resulting in right bundle branch block pattern. The fact that only 81 per cent of the cases in this study demonstrated RBBB may be due to the presence of intrinsic disease of the left bundle.

Figs. 1 and 2 contain examples of aberrant conduction of premature atrial contractions. Fig. 1, tracings A and B, illustrate the classic aberrant beat. Premature atrial activity and the RSR' are present, and identical 0.02 seconds of the QRS can be appreciated. The lower strip from tracing B shows the relationship of the long preceding cycle to the aberrantly conducted premature complex. In tracing C, the finding of an RSR' complex in V1 with an initial 0.02 second of the QRS identical to the surrounding normal beat makes one suspect aberration. If a large number of complexes are viewed, preceding atrial activity can almost always be found when normal sinus rhythm is present. A ventricular ectopic beat in the same lead helps in making the distinction. Preceding atrial activity is sometimes misleading, as in the

Fig. 1. A-B show classical aberrant conduction as described in text; C—RSR' complex with initial 0.02 similar to normal complex indicates aberrant conduction in absence of obvious preceding atrial activity; D—probable fusion beat; E-F—aberrant conduction without the characteristic RSR' pattern or similar initial 0.02 seconds of the QRS. G—lower strip, the fourth complex is aberrant but not of the RBBB pattern. H—aberrantly conducted beat terminating a run of flutter. I—probable PAC. (See text)

premature ventricular beat in tracing D following a P wave that is in sequence and not premature at all. The triphasic pattern and

identical initial 0.02 seconds of the QRS are helpful when present; but in tracings E and F, neither of these were present; yet, definite premature atrial activity is seen.

If atrial activity is not evident in one lead, other leads should be examined. Twenty per cent of the complexes are not of the right bundle branch block pattern as seen in tracing G (upper strip lead I, lower strip V1). In tracing H, a bizarre complex is seen terminating atrial flutter in lead II. If the flutter had continued with conduction of these aberrant complexes, an erroneous diagnosis of ventricular tachycardia might have been made. However, in a previous tracing of the same patient, an identical complex was seen with definite premature atrial activity; therefore, it can be assumed that the first complex represents aberration. Some complexes defy identification, as the one in tracing I which is premature without any preceding atrial activity seen, and yet, with no compensatory pause. There is probably a premature atrial contraction hidden in the preceding T wave. Simultaneous leads might have been helpful in identifying atrial activity in this case.

Fig. 2 shows a tracing of sinus bradycardia with nodal escape beats and conducted aberrant beats. Not only is there aberration of the ventricular complex, but, when an impulse reaches the AV node in its relative refractory period, delayed conduction in that tissue can also result. In this tracing, when an atrial contraction occurs at 205 MSEC, the PR interval is also 205 MSEC, but when the atrial activity is earlier and reaches the node in its relative refractory period, the AV conduction is delayed. The shortest R-P interval (100 MSEC) is associated with the longest PR interval, 320 MSEC. All of these conducted atrial beats, except the sixth one on the top strip and the third one on the bottom strip, follow a QRS complex close enough to reach the right bundle in its refractory state, producing the right bundle branch block pattern. The fifth complex on the top strip and the second complex on the bottom strip are of different configuration and meet the criteria of premature ventricular contractions.

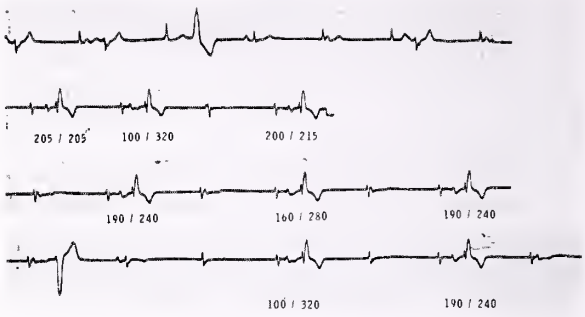


Fig. 2. Sinus bradycardia with nodal escape beats and aberrantly conducted premature atrial contractions. Prolonged conduction through the A-V node due to prematurity is also demonstrated. With atrial beat at 205 MSEC/PR is 205 MSEC, as the P moves closer to the previous nodal beat, the PR progressively elongates; 190/240; 160/280; 100/320. (See text)

Summary and Conclusion

Six per cent of 1,200 electrocardiograms contained bizarre ventricular complexes. Twenty-eight per cent of these complexes were considered to be premature atrial contractions with ventricular aberration. Preceding atrial activity and the aberrant complex terminating a short cycle preceded by a long cycle continue to be the most reliable criteria; however, when these are absent, as in atrial fibrillation or flutter or when P waves are otherwise obscured, the criteria as proposed by Mariott are helpful. In the coronary care unit, making the distinction between the two types of premature contractions may be significant. •

REFERENCES

[1] Berliner, Kurt, and Lewithin, Leon P.: "Auricular Premature Systole," American Heart Journal, 29:449, April, 1945.
[2] Gouaux, James L., and Ashman, Richard: "Auricular Fibrillation with Aberration Simulating Ventricular Paroxysmal Tachycardia," American Heart Journal, 34:366, September, 1947.
[3] Langendorf, Richard, Pick, Alfred, and Wintermitz, M.: "Mechanisms of Intermittent Ventricular Bigeminy," Circulation, 11:422, March, 1955.
[4] Bellet, Samuel: "Clinical Disorders of the Heart Beat," Philadelphia, 1963.
[5] Sandler, I. Alberto, and Mariott, Henry J. L.: "The Differential Morphology of Anomalous Ventricular Complexes of Right Bundle Branch Block—Type in Lead V1," Circulation, 31:551, April, 1965.
[6] Mariott, Henry J. L., and Sandler, I. Alberto: "Criteria, Old and New, for Differentiating Premature Atrial Contractions with Ventricular Aberration from Ventricular Extrasystolies," Progress in Cardiovascular Disease, 9:18-28, July, 1966.
[7] Moe, Gordon K., Mendez, Carlos, and Han, Joak: "Aberrant A-V Impulse Propagation in the Dog Heart: A Study of Functional Bundle Branch Block," Circulation Research, 16:261, March, 1965.
[8] Cohen, Stafford I., Lau, Sun H., Hoft, Jacob I., and Damato, Anthony N.: "Experimental Production of Aberrant Ventricular Conduction in Man," Circulation, 36:673-685, Nov., 1967.

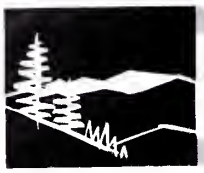
CALORIES / 7 oz. Serving*

Beef Broth	22	Vegetable	68
Consommé	29	Tomato	69
Chicken with Rice	43	Cream of Asparagus	70
Chicken Gumbo	48	Cream of Chicken	76
Chicken Noodle	54	Cream of Mushroom	115
Cream of Potato	58	Green Pea	116
Chicken Vegetable	60	Cream of Shrimp (Frozen)	132
Vegetable Beef	66	Bean with Bacon	133

In planning high or low calorie diets, Campbell's more than 50 different soups offer you a wide choice. And, most of Campbell's Soups contain a wide variety of ingredients that can serve as supplementary sources of many essential nutrients.

* From "Nutritive Composition of Campbell's Products" which gives values of important nutritive constituents of all Campbell's Products. For your copy, write to Campbell Soup Company, Dept.35, Camden, New Jersey 08101.

There's a soup for almost every patient and diet ..for every meal and, it's made by Campbell



COLORADO

The Foundation

Since there are several Foundations in our state and region, most of you are wondering—"What Foundation?" I wondered the same, when I was notified that I had been elevated to the high office of *Foundation Advocate.* A review of the Colorado Medical Foundation is in order.

The Trust Fund of the Colorado Medical Foundation was established during the term of office of Dr. Walter W. King as President of the Society, on August 3, 1936, and Dr. King started the Fund with a donation of $500.00. In approving this measure the House of Delegates voted to transfer $100.00 from the Society treasury each year to assure a steady increase in the Fund, and several years ago this amount was increased to $300.00 yearly. Dr. King, also in his will, devised one-half of the residue of his estate, after the death of his heirs, to further fund the Trust in that department of the First National Bank of Denver.

Other donors include the proceeds from a life insurance policy by the late Dr. Sidney Bluemel and the (very much with us) retired Executive Secretary, Harvey T. Sethman. The late Dr. Ella Meade of Greeley also left a life insurance policy to the Foundation. Many small gifts have been received from time to time during the thirty odd years of the existence of the Trust which now amounts to upwards of $50,000.00—about a tenth of what one would expect to have accrued during all that time.

The Trust Agreement, which is most carefully drawn, meticulously worded, and hedged with all the usual provisions and protections to prevent losses and mismanagement, specifies that only the income from the principal funds or properties in the Trust shall be spent under the direction of the Board of Trustees of the Society, for Charitable and Educational purposes, including loans and gifts to any needy Doctor of Medicine in Colorado or his widow and children. All of the income from the Trust is presently being donated to the Colorado Health Careers Council for educational purposes.

The writer deems it his duty to urge each member of the Society to give serious consideration to the merits of the Foundation and to the possibilities it offers as a safe and fruitful recipient of grants, gifts and donations from our current earnings and our estates—free of all income and inheritance taxes, levies or expenses.

Chas. Bowdon Kingry, M.D.
Foundation Advocate
Colorado Medical Society

Mount Airy Award—

Robert S. Garber, MD, president of the American Psychiatric Association and Director of the Carrier Clinic in Belle Mead, New Jersey, was the recipient of the first Mount Airy Gold Medal Award for "distinction and excellence in psychiatry."

Dr. Garber is widely recognized as a leader in the psychiatric education of the general physician and in developing psychiatry's contributions to community mental health.

Presentation of the award was in Denver, Colorado, February 27 when the Mount Airy Foundation and the Mount Airy Psychiatric Center inaugurated the Gold Medal Award Seminar and Banquet.

The Mount Airy Gold Medal will be awarded annually to the individual judged to have contributed most to psychiatry during the past year and a seminar featuring leaders in psychiatry will be held each year in connection with the award.

The Mount Airy Psychiatric Center is a community hospital dedicated to the betterment of mental health through treatment, community service and research. It has served the area for 68 years and is the largest facility in the region at which a patient may be treated by the physician of his choice. It is administered by the non-profit Mount Airy Foundation which is governed by a board of 30 prominent civic leaders, both laymen and physicians. The medical staff of 80 counts among its members the leading psychiatrists, neurologists and neurosurgeons of the area.

MONTANA

Doctor, It's 1971!
Do you know where your library is?*

Doctors who practice in larger hospitals or live in college towns have access to library materials, but how does the doctor in Frontierstown get hold of research data, or specific citations describing new treatments or tests?

The Pacific Northwest Regional Health Sciences Library (PNRHSL) in Seattle is the center of a communication network which will make health science information readily available to the medical profession throughout the Pacific Northwest. The primary purpose of the PNRHSL is to supply biomedical information to physicians and other health professionals in Alaska, Idaho, Montana, Oregon, and Washington. This is accomplished by making the library station in even the smallest hospital a viable service unit and eligible

*The title and the idea for the article are from *Maryland State Medical Journal*, Oct. 1968, p. 31-33 "Doctor, it's 1968! Do you know where your library is?" Guerin, Paul F. and Sanford, Elizabeth.

to secure interlibrary loans for these persons. The service is being sponsored by PNRHSL and in Montana jointly with the Western Interstate Commission for Higher Education, Mountain States Regional Medical Program (Montana).

A program using this network and designed to stimulate and facilitate continuing education in the health professions has been started at selected hospitals in the Pacific Northwest, including one in Bozeman and one in Missoula. At each participating hospital a person has been designated to provide hospital staff with an information service including assistance in bibliographic searches, in borrowing books and journals from distant locations, and in obtaining photocopies of health science publications. Requests for such information are transmitted through the network to the source that can supply the information and materials needed. Photocopies obtained through the network are sent directly to the requestor. Loaned material is sent to the hospital station from which it was requested for pickup by the person asking for the service. Such loaned material must be brought back to the hospital station for return to the source of the loan. Bibliographic search information is, like photocopy, sent directly to the requestor.

Those health professionals needing intensive bibliographies on a specific subject for a particular reason have access to the retrieval capabilities of the computer. If an article has been published and indexed, it can be found. The world's medical literature is on call at Bethesda, Maryland, in the National Library of Medicine. The NLM's MEDLARS (Medical Literature Analysis and Retrieval System) program provides complete access to an author and subject arranged magnetic tape file containing more than a million citations. This file is being updated at a rate of 200,000 entries a year. MEDLARS searches (which run back to 1968 only) will provide a printed list of citations numbering from 30 to 40 to more than 500. It is important to define carefully the exact information for which you are searching or may learn "more about penguins" than you really care to know.

Example: Request for MEDLARS search on blood flow in colon—in particular with respect to ulcerative colitis. Formulation of search includes main heading of intestine—regional blood flow—modified under hemodynamic terms, ulcerative colitis, mucosa, etc.

The following hospitals have established library service stations in this Montana network: Billings: Billings Deaconess Hospital, St. Vincent's Hospital; Boulder: Boulder River School and Hospital; Bozeman: Bozeman Deaconess Hospital; Butte: St. James Community Hospital; Chester: Liberty County Hospital; Cut Bank: Glacier County Memorial Hospital; Dillon: Barrett Hospital; Great Falls: Montana Deaconess Hospital; Hamilton: Marcus Daly Memorial Hospital; Hardin: Big Horn County Memorial Hospital; Havre: Northern Montana Hospital; Helena: St. John's Hospital, Shodair Crippled Children's Hospital; Lewistown: Central Montana Hospital; Miles City: Holy Rosary Hospital; Missoula: St. Patrick Hospital; Philipsburg: Granite County Meorial Hospital; Scobey: Daniels Memorial Hospital; Shelby: Toole County Hospital; Sheridan: Ruby Valley Hospital; Superior: Mineral Hospital; Fort Harrison: Fort Harrison VA Hospital; Miles City: Miles City VA Hospital.

If you do not see signs, brochures, or other literature in your own hospital with information about the PNRHSL services, ask your hospital administrator what is being done locally. Or, if you cannot get information at your hospital, write directly to Leonard W. Brewer, M.D., 1703 Ronald Avenue, Missoula, Coordinator for the program.

The development of a strong regional health science information service is expected to strengthen and support existing local patterns and arrangements of interlibrary cooperation and lending. Physicians who have been told of the service (as they were, for example, at the 1970 Annual Montana Medical Association meeting in Bozeman) have shown a lively interest in its potential. It is hoped that their use of the network facility will result in an increasing awareness on the part of all health professionals of the availability of this service through which such a variety of informational needs can be supplied. However, it is important to remember that the PNRHSL information network service is a back-up information resource to be called upon only when local facilities cannot meet the need.

If your hospital is a participant in the program, you may want to investigate or review the following points:

1. Is there a designated station within the hospital and a responsible person for the service?

2. Have you and your staff seen information about the hospital service? Staff includes nursing, laboratory, X-ray, record room personnel, and the in-service or nursing school educators—all of whom are eligible to use the service.

3. Have you used the service to obtain photocopies or books? Has it been helpful?

4. Have you inquired about the MEDLAR searches? Have you used this service, and with what results?

Increasingly hospitals must become centers of continuing education for all Health related personnel.

Alice McClain
Librarian, Montana State University, Bozeman.

OBITUARIES

Montana

Robert Wendell Poundstone, MD, Dillon, Montana, died suddenly on January 3, 1971.

Doctor Poundstone was born on February 22, 1926, in Galesburg, Illinois. He received his B.S. degree in 1948 from the University of Kentucky and his M.D. degree from Northwestern University Medical School in 1952. Shortly thereafter he moved to Montana and engaged in the general practice of medicine in Dillon.

Doctor Poundstone was very active in community affairs and served as a member of several important committees of the Montana Medical Association.

Wyoming

Orville Clinton Reed, MD, age 78, of Torrington, Wyoming died at his home September 13, 1970. Born at Eagleville, Missouri, May 5, 1892, he grew up in Missouri, and was graduated from the Medical School at Kansas City.

Following his graduation, he practiced medicine near Kansas City, Missouri for some time, then at Kensington, Kansas and Lexington, Nebraska prior to his coming to Torrington in 1927.

He was married to Miss Elda Wilds in 1915, and she died in 1917. In 1921 he was married to Edna Belle Merriman.

Doctor Reed was a charter member and the first president of the Goshen County Medical Society, and was a member of the American Medical Association and the Wyoming State Medical Society. He was Goshen County Health Officer for several years.

He is survived by his wife, Edna, of Torrington, two sons, Marston C. of Fresno, California and Lynn B. of Arvada, Colorado, two grandchildren and one great-grandchild.

Newton Optical Company

Catering to Medical Profession Patronage

309 16th Street
Denver 80202

GUILD OPTICIANS

Telephone
534-8714

Colorado

Hugh John Hopkins, MD, retired Denver physician, died January 22, 1971 at the age of 71. Born November 1, 1899 in Ridgeway, Ontario, Canada, Doctor Hopkins was educated in Denver Schools and obtained his M.D. degree from the C.U. Medical School in 1924. After postgraduate training at Denver General Hospital, he established his practice here with offices in the downtown area for many years.

During World War II, when he was serving as Major in the Army Medical Corps in the South Pacific, he took thousands of pictures as a hobby and sent them home to families of the servicemen pictured.

He was a member of the Alpha Pi Nu fraternity, Phi Rho Sigma Medical fraternity, Colorado Medical Society and the American Medical Association.

Surviving are a sister, Mrs. Hazel Hopkins Spore of Evanston, Illinois, and three nieces.

Utah

Alfred Joseph Ridges, MD, one of the founders of the Salt Lake Clinic, died February 11, 1971. He was 97. Doctor Ridges was born on February 7, 1874, in Salt Lake City. He married Edna Marinda Hyde in 1899, who died in 1943. He married Ruth U. Webster in 1944.

At age 19, Doctor Ridges was graduated from the University Normal School in Salt Lake City, and began teaching in Bountiful. He received his Bachelor of Science degree from the University of Utah at age 25, and for four years served as professor of chemistry at the Brigham Young College in Logan. When he was 35, he graduated from Johns Hopkins University, Baltimore, with a Doctor of Medicine degree. Doctor Ridges returned to Salt Lake City in 1908, where he commenced his practice in general medicine. He affiliated with the L.D.S. Hospital medical staff at that time, and later served as its president. In 1913, after one year of study in Berlin, Germany, Doctor Ridges returned to Salt Lake City to become one of the pioneers in the specialty of ear, nose, and throat surgery. He helped to organize the Salt Lake Clinic in 1915.

Active in medical society affairs, Doctor Ridges served as president of the Pacific Coast Oto-Ophthalmological Society. He was a member of the Salt Lake City, Utah State, and American Medical Associations. He retired from medical practice at the age of 75.

Survivors include the doctor's widow; two sons and four daughters, Alfred H., and Mrs. B. W. (Jean) Jennings, both of San Diego, Calif.; Melvin H., and Mrs. A. M. (Helen) Okelberry, both of Salt Lake City; Mrs. Lyle L. (Edna) Gaskill, Ogden; and Mrs. Jennis R. Farley, Albany, Oregon. Also surviving are 16 grandchildren, 54 great grandchildren, and two sisters, Mrs. Mary Merrill, Alameda, Calif., and Mrs. Hazel Ford, Salt Lake City.

MEDICAL SCHOOL NOTES

University of Nevada School of Medical Sciences

The Educational Support Division is the service division of the School of Medical Sciences, and is so organized that it draws resources from the School of Nursing, the Division of Health Sciences, and other schools and colleges of the university.

The Educational Support Division has two major operations, instructional and productional, as will be seen in the detailing of its functions.

First, the division is responsible for the development and implementation of in-service training for medical school staff and local clinicians and other health care professionals involved in instructional tasks.

This includes methods of evaluation of curriculum, evaluation of teaching and learning, as well as introduction to, and instruction in, the most modern teaching strategies and methodologies.

It further assists the instructional staff in the development of student learning consonant with the objectives of the school, particularly in providing methods which tend to insure the desired skills and attitudes in the students.

Second, the division is responsible for obtaining and giving assistance in the utilization of the most effective hardware and software available which genuinely enhances and economically expedites learning.

This includes the management of a radio-television subsystem, and technical and educational service for the multi-disciplinary laboratories and self-learning centers.

Assistance is rendered staff for fully exploiting the vast array of multimedia, including audio and video tapes, programmed learning, television for instruction and evaluation, films, slides, recordings, overlays, field experiences, and the like.

The Educational Support Division is available not only to staff on call for such services, but is ready to act consultatively at any time staff wishes to seek ways of improving present instructional quality.

In addition, the Educational Support Division serves by making available the latest information concerning the services mentioned, along with suggestions for enriching the on-going Health Sciences Instructional Program.

Finally, the division acts in a supplemental service role in curriculum development and programs of continuing education for community health care professionals.

Inquiries for assistance in any of the directions cited above should be made to the Educational Support Division located in Mackay Science Hall, Room 300C, telephone 784-6001. Dr. Dan L. Oppleman is director.

* * * * *

There are going to be 32 instead of 24 students in the first class to study medicine at the University of Nevada, Reno, School of Medical Sciences.

The eight additional students can be accommodated in the class that starts next September because of plans for more flexible use of resources, and because it is expected that by accepting more students the school will become eligible for certain Federal grants, said medical school dean, Dr. George T. Smith.

He listed the following among expanded resources which make possible the enlargement of the first class: the large number of outstanding applicants, increased curriculum flexibility, with more emphasis on problem-solving and self-learning; increased flexibility in the use of clinical and community health care facilities and preceptorships, and development of the Educational Support Division with its assistance to faculty accepting this increased teaching load.

Dean Smith also explained that leading criteria for Federal grants to medical schools include innovative teaching methods, shortening of the length of time required to prepare a physician, and increasing the size of classes, all of which are being done at the new Nevada school.

Upon completion of the two-year medical curriculum, the students will transfer to universities in other states where the doctor of medicine degree is granted. By selecting students for the two-year curriculum who have completed work, in the new UNR Health Sciences Program or elsewhere, that otherwise would have to be accomplished in medical school, and by innovative plans for the new school, the total length of time required to train a physician will be reduced.

Hundreds of students in the Health Sciences Program are preparing to become medical technologists, nurses, physical therapists, and other types of health care professionals who are needed to work with physicians.

* * * * *

The Life and Health Sciences Library has received a National Library of Medicine Resources Grant of $8,541 for the current fiscal year.

This is the third year of a five-year grant. It is a declining grant beginning originally at $15,000. It covers books, periodicals, binding and the teletypewriter installation and monthly rental.

* * * * *

"Reasonable assurance" that the School of Medical Sciences will be fully accredited has been granted by authorities responsible for medical education in the United States and Canada.

The designation was assigned by representatives of the American Medical Association (AMA) and the Association of American Medical Colleges (AAMC) at a meeting in Chicago.

This is the last accreditation step necessary for the medical school until after it starts classes this year. Full accreditation comes only after a school has graduated its first class.

Dr. C. H. William Ruhe, secretary of the Council on Medical Education of the AMA, said:

"This represents a facet of the peer review principle for planning efforts. It shows that planning has been sound from an educational point of view.

"This 'reasonable assurance' has been jointly expressed by the Association of American Medical Colleges, spokesmen for medical educators in the United States, and by the American Medical Association, which technically represents the private practice sector of medicine in the United States."

Dr. Ruhe also said the "reasonable assurance" designation is necessary for federal grants and that this is an assurance to students the school will meet the accreditation standards so that they can transfer to other schools."

University of New Mexico School of Medicine

Biochemistry chairmen from medical schools throughout the United States met in New Mexico last month at a national meeting hosted by the University of New Mexico School of Medicine.

Among the keynote speakers was Dr. Philip Handler, president of the National Board of Sciences, from Washington, D.C., who is well known as a spokesman on the role of government in the fields of science and medicine.

Dr. Handler discussed the teaching of biochemistry in the medical school, emphasizing variations with the different types of curriculum now in effect. He also stressed the role of basic sciences (especially biochemistry) in the medical school, relative to the undergraduate school.

* * * * *

How many Albuquerque traffic accidents involve the use of some kind of drugs? Probably more than we now suspect—and a new study under way at Veterans Administration Hospital will provide concrete facts on drug-accident relationships.

The study is a joint effort between the University of New Mexico School of Medicine Department of Pathology, Veterans Hospital, the UNM College of Engineering and the New Mexico Highway Accident Investigation Project.

Dr. Roger Sopher, assistant chairman of the medical school pathology department and chief of pathology at Veterans Hospital, which is a primary teaching hospital for the medical school, is in charge of the research study. The entire study is being done without any identification of the accident victim.

The VA toxicology lab already has examined body fluid samples from 30 detailed case investigations by the Highway Accident Investigation team. The team is made up of students from the medical school and the college of engineering. Federally financed to investigate causes of highway accidents, the team has been functioning for a year and has just received an extension of their contract for another year.

Lab personnel have been working closely with groups who are trying to get legislation passed this year which would improve New Mexico's existing implied consent law.

University of Colorado Medical Center

"Why don't they train any of the good, old-fashioned, sympathetic, down-to-earth family doctors these days?"

The answer to the question, according to Dr. Herbert R. Brettell of the University of Colorado School of Medicine, is that "they" do at the CU Medical Center, and have been for nearly 25 years.

Dr. Brettell, who heads the medical school's Division of Family Practice, took the occasion of the eighth annual Colorado "Family Doctor Week"—Jan. 17-23, as proclaimed by Gov. John A. Love—to review the school's activities in educating young doctors for broadly-based general practice that is patient and family oriented.

The first 1971 review course was attended by 233 physicians from 37 states, Canada, and Egypt. Beginning in 1953 the six-day course was presented once a year. Since 1963 it has been offered twice annually—January and June—and oversubscription of the 1970 courses has led to a three-session schedule this year.

Dr. Brettell explained that young physicians are accepted into the family practice residency program on completion of their one-year internship following receipt of their M.D. degrees. The resident physicians preparing to specialize in family practice take two years of training at Colorado General, Denver General, Denver Veterans Administration and General Rose Memorial Hospitals in pediatrics, internal medicine, psychiatry, obstetrics and gynecology, emergency trauma, and various elective fields.

"The picture among the students now is changing rather significantly," Dr. Brettell said. "I think all of us in medical education are recognizing the upsurge of student interest in family practice arising out of a new climate of social dedication and involvement—activism if you will.

"An increasing number of medical students are deciding that family practice is 'where the action is,' and I predict that our family practice programs will expand substantially in the years ahead."

You Can Order

REPRINTS

of any feature or advertisement appearing in

The Rocky Mountain Medical Journal.

Orders must be placed within 15 days after date of publication. Minimum charge applies for 100 copies or less.

The cost is very reasonable.

For further information write to—

The Rocky Mountain Medical Journal

1809 East 18th Avenue

Denver, Colorado 80218

BRO[A]DMOOR yourselves

for the pure pleasure of it all!

Discover America's finest resort facilities, dining and accommodations, here within 5,000 acres of enjoyment at the gateway to the Colorado Rockies.

The BRO[A]DMOOR Colorado Springs, Colorado

THE EMORY JOHN BRADY HOSPITAL

401 Southgate Road COLORADO SPRINGS, COLORADO 80906 MElrose 4-8828

E. JAMES BRADY, M.D., *Medical Director*

CAMPBELL F. RICE, *Superintendent*

Francis A. O'Donnell, M.D.
Robert W. Davis, M.D.
Richard L. Conde, M.D.
Paul A. Draper, M.D.
Charles W. McClellan, M.D.
James E. Edwards, M.D.

For the care and treatment of Psychiatric disorders.
Individual and Group Psychotherapy and Somatic Therapies.
Occupational, diversional and outdoor activities.
X-ray, Clinical Laboratory and Electroencephalography.

WANT ADS

FOR RENT—Medical-Dental Suites available in Denver Metropolitan area. Free off-street parking, Muzak, Janitorial services, air conditioning and utilities included; from $3.75 per sq. ft./annum. Contact R. McCulloch, (303) 795-0175. The Broadway Professional Building, 6200-02 South Broadway, Littleton, Colorado 80121. 371-1-1B

TWO POSITIONS open for MD's under 55 years of age who wish challenging medical practice with regular hours and minimal night work. Paid vacation and medical meeting plus fringes. Compatible medical staff of 8 working in 40 bed, Joint Commission Accredited Hospital. Attractive college town of 35,000. Robert E. Sinclair, M.D., Lafene Center and University Hospital, Kansas State University, Manhattan, Kansas 66502. 371-3-1B

WESTERN PROFESSIONAL BUILDING, 1701 So. Federal Blvd., space available, 1,800 sq. ft.—new building will divide. Southwest Denver. Large drawing area—two ophthalmologists, general dentist and optician already in building. Psychiatry, dermatology, neurosurgery, ENT, psychology, neurology and periodontics are among the many specialties and subspecialties not yet represented in this thriving suburban area of Denver. Adequate parking. Excellent location. Easy access to St. Anthony, Beth Israel, Porter and Swedish Hospitals. For information contact: L. A. Winograd, M.D.—934-5835. 371-4-1B

RADIOLOGIST DESIRES TO LOCATE in the Rocky Mountain area. Prefer Colorado. Like to locate in or near the mountains where there is skiing and fishing. Would eonsider a resort area. Being a family man I am concerned about the education of my children. I am board certified in Radiology and Nuclear Medicine with 15 years experience. Desire solo practice, however, would like a reasonable amount of time off for education and vacation. I am presently Chief of Radiology in a large hospital. I want to move out of the big city. All inquiries will be answered. Address all replies to Box Number 371-6-3B, Rocky Mountain Medical Journal, 1809 E. 18th Avenue, Denver, Colorado 80218. 371-6-3B

680—1,100 SQ. FT. in the Cherry Hills Medical Arts Building complex, 3535 So. Lafayette Street. Englewood, Colorado. The space was originally set up for dental offices but would consider some changes to suit. Minutes from two fine hospitals and the New Englewood Shopping Center. Complex consists of 27 M.D.'s etc. For information call (303) 761-2543 or write Richardson & Co., 300 E. Hampden Avenue, Englewood, Colorado 80110. 371-5-2B

COLORADO PERMANENTE MEDICAL GROUP desires Board-eligible or certified physicians in:
• INTERNAL MEDICINE • PEDIATRICS • ENT
• GENERAL SURGERY • OB-GYN • OPHTHALMOLOGY
Salary open. Liberal fringe benefits. Great climate. Write: W. L. Reimers, M.D., 2045 Franklin Street, Denver, Colorado 80205. 271-3-3B

THREE-YEAR OLD FULLY EQUIPPED, AIR CONDITIONED CLINIC BUILDING, 1800 sq. ft., for rent or sale. Ideal site for either office practice only or can use open staff hospitals in Brighton or Greeley. 45 miles from Denver on Interstate 80. Smog-free rural community, no drug problems, etc. Call 659-5687 after 6 p.m. 271-2-6B

NEW MEXICO . . . . University trained psychiatrist seeks position in Albuquerque or Santa Fe area. Reply Box 103, Mayo University of Minnesota Hospitals, Minneapolis, Minnesota 55455. 35 y/o. Available July 1, 1971. 271-1-2B

OPPORTUNITY: GENERAL SURGEON, prefer older man, for industrial work and assist in O.R. Salary open. No investment. Lots of free time to enjoy Las Vegas area. Contact Perry O. Williams, Henderson Clinic, 67 Lake Mead Drive, Henderson, Nevada 89015. (702) 565-8701. 1170-2-6B

EXPERIENCED PHYSICIAN seeks part time/full time position in E.R. and/or covering general practice in Albuquerque/Santa Fe area. Reply Box 103, Mayo, University of Minnesota Hospitals, Minneapolis, Minnesota 55455. Available July 1, 1971. 271-5-2B

GENERAL SURGEON—96 Bed GM&S hospital; located in the friendliest city in the West; Medical Center Eastern Montana; unlimited outdoor recreation; excellent schools, community college; non-discrimination in employment; salary dependent on qualifications. Write or call Frank R. Mohs, M.D., Chief of Staff, VA Hospital, Miles City, Montana 59301. 371-2-3B

Tax-free Cash!

Here's great news about a Disability Income Plan that can pay you up to $1,000.00 a month in TAX-FREE CASH when you're sick or hurt and can't work.

This remarkable plan is offered to you at a special savings as a member of the Colorado Medical Society. It is underwritten by Mutual of Omaha, the leader in its field.

You choose the coverage best suited to your requirements from among 34 different plans — each one tailored to meet a special need.

This is the kind of protection every doctor should have. So send today for full details. Complete and mail the coupon below today.

Mutual of Omaha®
The Company that pays

Life Insurance Affiliate: United of Omaha
Mutual of Omaha Insurance Company
Home office: Omaha, Nebraska

Colorado Division Office
Mutual of Omaha
2nd Floor, Railway Exchonge Bldg.
Denver, Colorado 80202

Please rush me full details on the Colorado Medical Society's Disability Income Protection Plan.

Address .....

Name .....

City ..... State ..... Zip .....

3-6-9-12-71

Abbott Laboratories
Erythrocin 8-10

Arch Laboratories
Dicarbosil 54

Breon Laboratories, Inc.
Measurin 59

Broadmoor Hotel 69

Burroughs Wellcome Company
Empirin Compound 4

Campbell Soup Company
Asparagus 63

Denver Optic Company 14

Emory John Brady Hospital 69

Flint Laboratories
Synthroid 35-38

Lederle Laboratories
Achrostatin 22

Lilly, Eli & Company
Ilosone Liquid 20

McNeil Laboratories
Parafon Forte 11

Mutual of Omaha 70

National Drug Company
Tepanil 17
Quinamm 18
Orenzyme 55
AVC 56

Newton Optical Company 66

Picker Medical Products 49

Publishers Press, Inc./
Monitor Publications 71

Riker Laboratories
Norflex 6

Roche Laboratories
Librax ..... Cover II, Page 1
Larobec 7
Efudex 12-13
Valium ..... Cover IV

Searle, G. D. & Company
Demulen ..... Cover III, Page 72

Stuart Pharmaceuticals
Mylanta 5

PUBLICATION PRINTING . . .

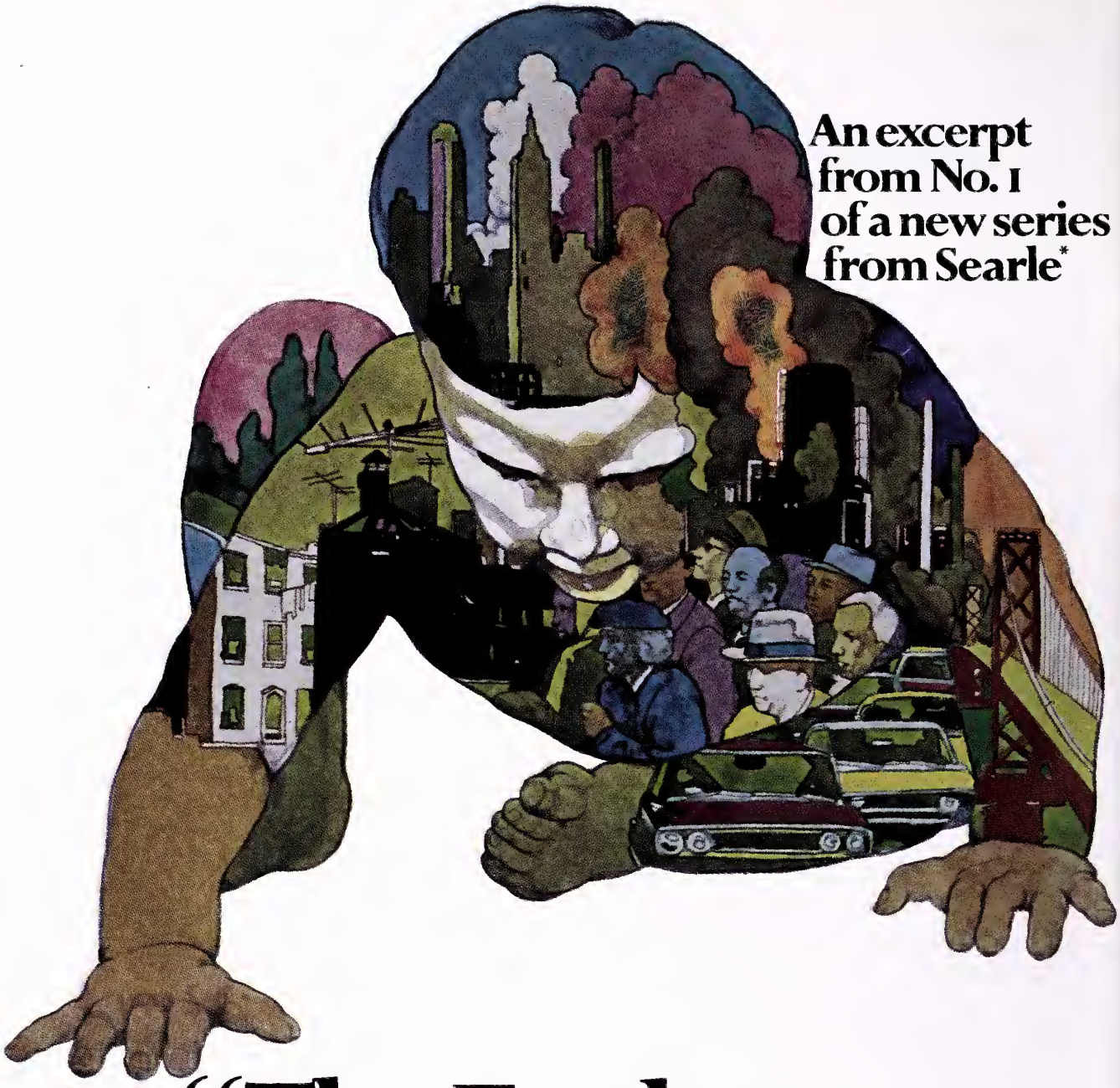
NEWSPAPERS • MAGAZINES
ANNUALS • QUARTERLIES
BOOKLETS • BROCHURES
REPORTS • ROSTERS • PROGRAMS
HANDBOOKS • CATALOGUES

•

EDITORIAL ASSISTANCE • BINDING
ART DEPARTMENT • MAILING

Publishers Press, Inc.
/Monitor Publications

2177 W. 7th DENVER 892-0166



An excerpt from No. 1 of a new series from Searle*

"The Ecology of Birth Control"

75 million more Americans—what impact on health care?

Because of a declining birthrate in the United States—attributable in no small measure to the widespread use of contraceptives—our population in thirty years is expected to be *only* 280 million, while the world population is expected to double, reaching 7 billion.

But the word "only" has an ironic ring to ecologists who warn of cities resembling overcrowded, contaminated rat colonies, of respiratory and mental diseases reaching epidemic proportions and of a health-care community virtually overwhelmed by the burden.

The global consequences may be no less devastating. Ecologists estimate that every American has roughly fifty times the negative impact on the Earth's life-support systems of, say, a citizen of India. In these terms, adding 75 million Americans would be equivalent to adding 3.7 billion Indians to the world population.

**For the complete brochure, and others in the series as they appear, please write to Searle or ask your Searle representative.* Explored in the forthcoming issues will be the role of birth control on family pressures and its effects on the family; the influences of poverty, ethnic factors and marital status; its role in illness, its genetic implications and its effects on the emotional and behavioral life of the individual.

Rocky Mountain Medical Journal

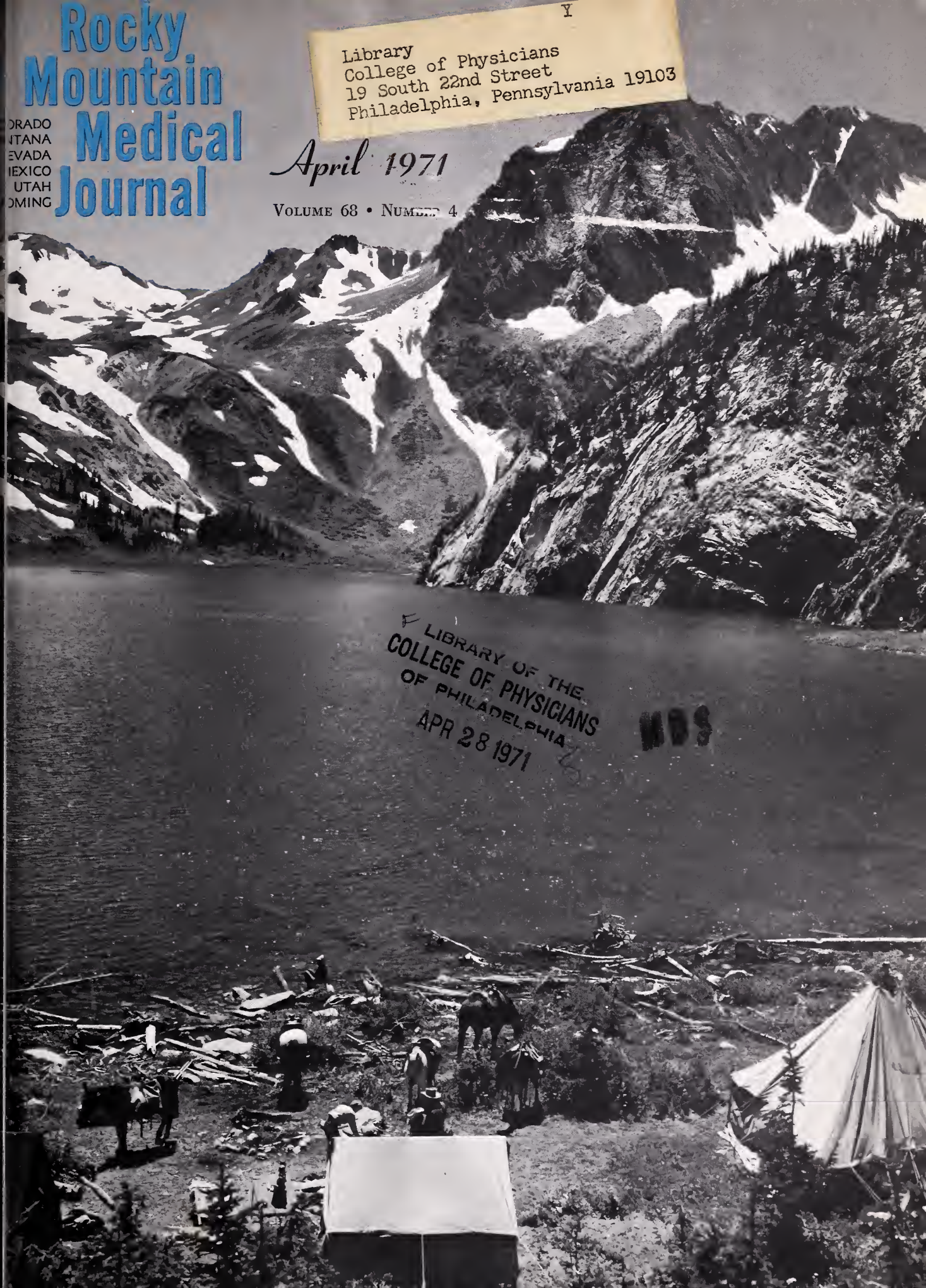
ORADO
ITANA
EVADA
IEXICO
UTAH
OMING

Y

Library
College of Physicians
19 South 22nd Street
Philadelphia, Pennsylvania 19103

April 1971

VOLUME 68 • NUMBER 4



LIBRARY OF THE
COLLEGE OF PHYSICIANS
OF PHILADELPHIA
APR 28 1971

Efudex®
(fluorouracil)
cream/solution

In the treatment of solar/actinic keratoses—
An alternative to cold, fire and steel

2/23/68
Before treatment with 5% 5-FU cream. Patient R. G., 78 years old, shows extensive skin changes due to weathering and severe solar/actinic keratoses.

3/26/68
Following one month of therapy. Intense erythematous reaction is seen at sites of keratoses. Normal skin has not reacted. Some areas which had reacted initially have undergone healing despite continued topical application of 5% 5-FU.

6/11/68
Ten weeks after discontinuance of therapy. All areas have healed completely Residual mild erythema remains in some areas. This patient also had seborrheic keratoses which, as expected, have not reacted. There is no evidence of residual lesions or recurrences.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

An alternative to conventional therapy

Efudex (fluorouracil) offers the physician a topical alternative to cryosurgery, electrodesiccation and cold-knife surgery in the treatment of solar/actinic keratoses. It is effective, comparatively inexpensive and especially well suited for treatment of these multiple lesions. Important, too, is the highly desirable cosmetic result. Clinical experience demonstrates that treatment with Efudex results in an extremely low incidence of scarring.*

Highly effective

In clinical trials, depending on the dosage form and strength used, complete involution occurred in 77 to 88 per cent of lesions following treatment. The rate of recurrence was low, ranging from 1.7 to 5.6 per cent up to a year after completion of therapy. When new lesions appeared, repeated courses of Efudex therapy proved effective.*

Predictable therapeutic response

Two to four weeks constitutes a typical course of Efudex therapy. The response is usually characteristic and predictable. After three or four days of treatment, erythema begins to appear in the area of keratoses. This is followed by an intense inflammatory response, scaling and occasionally moderate tenderness or pain. The height of the inflammatory reaction generally occurs two weeks after the start of therapy, and then begins to subside as treatment is stopped. Within two weeks of discontinuing medication, the inflammation is usually gone. A mild erythema may remain for two or three months before gradually receding. Since this response is so predictable, lesions which do not respond should be biopsied.

Two strengths—two dosage forms

Efudex is available as a 2% or 5% solution or as a 5% cream. It is applied twice daily by the patient with a nonmetal applicator or suitable glove.

Before prescribing Efudex, however, two important considerations: First, please consult the complete prescribing information for precautions, warnings and adverse reactions. Second, advise the patient that treated lesions should respond with the characteristic but transient inflammation. A positive sign that Efudex is working for them.

*Data on file, Hoffmann - La Roche Inc., Nutley, New Jersey.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Efudex Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)-aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Efudex Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing-cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

new
Efudex®
(fluorouracil)
cream/solution

ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

APRIL 1971

Volume 68, Number 4

Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222 (area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204

Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

Address all manuscripts, organization and other news items relating to editorial content to appropriate state editor, see below.

Editorials

13 MORE DOCTORS—HOW ARE WE GOING TO GET THEM?

Articles

21 PRE-HOSPITAL PHASE OF AN ACUTE CORONARY ATTACK — *Jacobus H. Verhave, MD, Clovis, New Mexico*

25 PROPHYLACTIC LITHIUM THERAPY — *Edward G. Billings, MD, Denver, Colorado*

29 PESTICIDE POISONINGS IN RURAL COLORADO — *E. P. Savage, PhD, J. R. Bagby, Jr., PhD, L. Mounce, MS, L. P. Williams, Jr., DVM, P. H. Cholas, DVM, and G. Cholas, DVM, Fort Collins, Colorado*

34 MALIGNANCIES OF THE CARDIOVASCULAR SYSTEM — *Arthur Schirger, MD, Rochester, Minnesota*

39 COOPERATIVE TUMOR REGISTRY
PRELIMINARY EVALUATION OF ROCKY MOUNTAIN STATES COOPERATIVE TUMOR REGISTRY — *Charles R. Smart, MD, and William K. Fitzpatrick, MD, Salt Lake City, Utah*

43 COMBATING DRUG ABUSE IN WYOMING — *James G. Haller, MD, Cheyenne, Wyoming*

47 ORGAN TRANSPLANTATION AND THE LAW — *H. Richard Beresford, MD, JD, Denver, Colorado*

Organization

57 COLORADO

57 NEVADA

58 UTAH

Features

54 BOOK CORNER

66 MEDICAL SCHOOL NOTES

69 OBITUARIES

70 MEETINGS

75 WANT ADS

77 INDEX TO ADVERTISERS

OUR COVER PHOTO

More than 210 Colorado camping areas and 2,200 campsites with facilities ranging from shelter houses, piped water and fireplaces, to Nature's own rustic accommodations, offer the three principal ingredients of a top-of-the-nation vacation — sunshine, solitude and scenic grandeur.

EDITORIAL BOARD

Colorado: Douglas W. Macomber, M.D., Scientific Editor, 1800 High St., Denver (Chairman of the Board); Carl H. McLauthlin, M.D., Assistant Scientific Editor, 510 Republic Bldg., Denver.

Montana: Gerald A. Diettert, M.D., Scientific Editor, 501 W. Broadway, P. O. Box 1307, Missoula, Montana 59801; L. Russell Hegland, Associate Editor, 1236 North 28th Street, Billings.

Nevada: Harry J. McKinnon, M.D., Scientific Editor, 3196 Maryland Pkwy. S., Las Vegas; Wesley W. Hall, M.D., Assistant Scientific Editor, 607 N. Arlington Ave., Reno; Nelson B. Neff, Associate Editor, 3660 Baker Lane, Reno.

New Mexico: Marcus J. Smith, M.D., Scientific Editor, Coronado Bldg., Santa Fe; William S. Curran, M.D., Assistant Scientific Editor, 920 Stanford NE, Albuquerque; Ralph R. Marshall, Associate Editor, 3010 Monte Vista Blvd., NE, Albuquerque.

Utah: Alan E. Lindsay, M.D., Scientific Edit 699 East South Temple, Salt Lake City; H W. Brewster, Associate Editor, 42 South Fi East Street, Salt Lake City.

Wyoming: Francis A. Barrett, M.D., Scient Editor, 1616 E. 19th St., Cheyenne; Rob Smith, Associate Editor, P. O. Box 1387, Che enne.

Donald G. Derry, Managing Editor

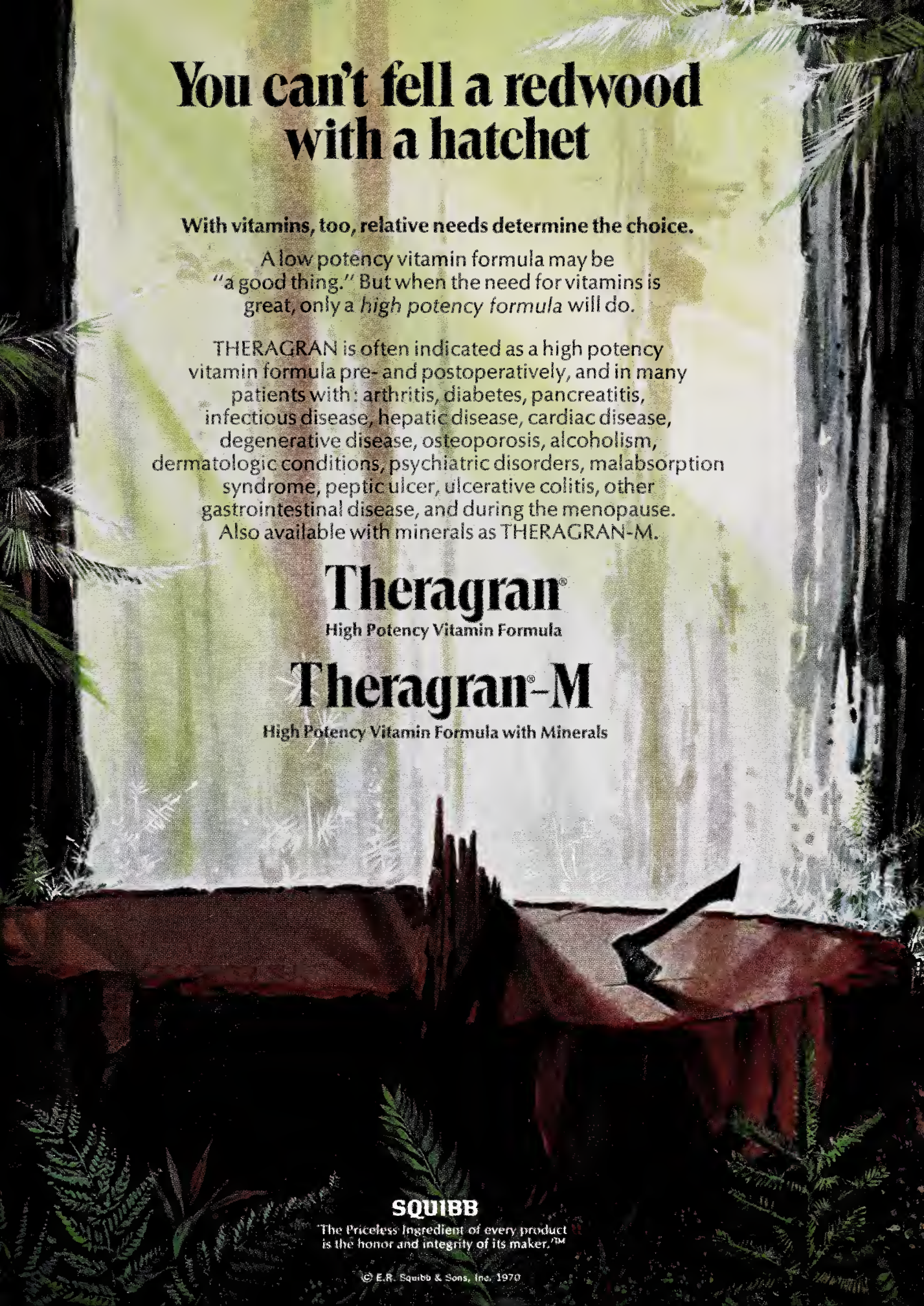
Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations: It is the Official Journal of the Rocky Mountain Medical Conference and those medical societies who are represented on the Editorial Board listed above.

Advertising: National representative: State Journals West, 693 Sut Street, San Francisco, California 94102.

Subscription: $7.00 per year in advance, postpaid in the United Sta and its possessions; single copy 60c plus postage. Subscription is i cluded in medical society dues of sponsoring state medical organiz tions.

Copyright: This Journal is copyright, 1971, by the Colorado Medic Society. Requests for permission to reproduce anything from t columns of this Journal should be addressed to the Journal Offi

Second class postage paid at Denver, Colorado


You can't fell a redwood with a hatchet
With vitamins, too, relative needs determine the choice.
A low potency vitamin formula may be "a good thing." But when the need for vitamins is great, only a high potency formula will do.
THERAGRAN is often indicated as a high potency vitamin formula pre- and postoperatively, and in many patients with: arthritis, diabetes, pancreatitis, infectious disease, hepatic disease, cardiac disease, degenerative disease, osteoporosis, alcoholism, dermatologic conditions, psychiatric disorders, malabsorption syndrome, peptic ulcer, ulcerative colitis, other gastrointestinal disease, and during the menopause. Also available with minerals as THERAGRAN-M.
Theragran®
High Potency Vitamin Formula
Theragran®-M
High Potency Vitamin Formula with Minerals
SQUIBB
"The Priceless Ingredient of every product is the honor and integrity of its maker."™
© E.R. Squibb & Sons, Inc. 1970

2
3
4
5
6

the night shift of depression... insomnia

Depression is a 24-hour-a-day problem. And insomnia is often its nocturnal expression. In fact, insomnia may be a key symptom in establishing the diagnosis of depression.

ELAVIL HCl (Amitriptyline HCl, MSD) may prove quite helpful when you have arrived at such a diagnosis. Unlike psychic energizers or agents that merely elevate mood, ELAVIL HCl embodies a mild antianxiety action which manifests itself even before the fundamental antidepressant activity of the drug becomes evident. Daytime drowsiness occurs in some patients, usually within the first few days of therapy.

NOTE: Not recommended during the acute recovery phase following myocardial infarction. Patients with cardiovascular disorders should be watched closely; arrhythmias, sinus tachycardia, and prolongation of the conduction time have been reported, particularly with high doses; myocardial infarction and stroke have been reported with drugs of this class. Close supervision is required for hyperthyroid patients or those receiving thyroid medication. Concurrent electroshock therapy may increase the hazards of therapy; such treatment should be limited to patients for whom it is essential. Discontinue the drug several days before elective surgery if possible.

Contraindications: Known hypersensitivity. Should not be given concomitantly with or within at least 14 days following the discontinuance of a monoamine oxidase inhibitor. Then initiate dosage of amitriptyline HCl cautiously with gradual increase in dosage until optimum response is achieved. Not recommended during the acute recovery phase following myocardial infarction or for patients under 12 years of age.

Warnings: May block the antihypertensive action of guanethidine or similarly acting compounds. Should be used with caution in patients with a history of seizures or urinary retention, or with narrow-angle glaucoma or increased intraocular pressure. Patients with cardiovascular disorders should be watched closely; arrhythmias, sinus tachycardia, and prolongation of the conduction time have been reported, particularly with high doses; myocardial infarction and stroke have been reported with drugs of this class. Close supervision is required for hyperthyroid patients or those receiving thyroid medication. May impair mental and/or physical abilities required for performance of hazardous tasks, such as operating machinery or driving a motor vehicle. Safe use during pregnancy and lactation has not been established; in pregnant patients, nursing mothers, or women who may become pregnant, weigh possible benefits against possible hazards to mother and child.

Precautions: When used to treat the depressive component of schizophrenia, psychotic symptoms may be aggravated; in manic-depressive psychosis, depressed patients may experience a shift toward the manic phase, and paranoid delusions, with or without associated hostility, may be exaggerated; in any of these circumstances, it may be advisable to reduce the dose of amitriptyline HCl, or to use a major tranquilizing drug, such as perphenazine, concurrently.

When given with anticholinergic agents or sympathomimetic drugs, close supervision and careful adjustment of dosages are required. May enhance the response to alcohol and the effects of barbiturates and other CNS depressants. The possibility of suicide in depressed patients remains during treatment and until significant remission occurs; this type of patient should not have easy access to large quantities of the drug. Concurrent electroshock therapy may increase the hazards of therapy; such treatment should be limited to patients for whom it is essential. Discontinue the drug several days before elective surgery if possible.

Adverse Reactions: *Note:* Included in this listing are a few adverse reactions not reported with this specific drug. However, pharmacological similarities among the tricyclic antidepressant drugs require that each reaction be considered when amitriptyline is administered.

Cardiovascular: Hypotension, hypertension, tachycardia, palpitation, myocardial infarction, arrhythmias, heart block, stroke. *CNS and Neuromuscular:* Confusional states; disturbed concentration; disorientation; delusions; hallucinations; excitement; anxiety; restlessness; insomnia; nightmares; numbness, tingling, and paresthesias of the extremities; peripheral neuropathy; incoordination; ataxia; tremors; seizures; alteration in EEG patterns; extrapyramidal symptoms. *Anticholinergic:* Dry mouth, blurred vision, disturbance of accommodation, constipation, paralytic ileus, urinary retention, dilatation of urinary tract. *Allergic:* Skin rash, urticaria, photosensitization, edema of face and tongue. *Hematologic:* Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia. *Gastrointestinal:* Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, parotid swelling. *Endocrine:* Testicular swelling and gynecomastia in the male, breast enlargement and galactorrhea in the female, increased or decreased libido. *Other:* Dizziness, weakness, fatigue, headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, drowsiness, jaundice. *Withdrawal Symptoms:* Abrupt cessation of treatment after prolonged administration may produce nausea, headache, and malaise; these are not indicative of addiction.

How Supplied: Tablets containing 10 mg and 25 mg amitriptyline HCl, in single-unit packages of 100 and bottles of 100, 1000, and 5000; tablets containing 50 mg amitriptyline HCl, in single-unit packages of 100 and bottles of 100 and 1000; for intramuscular use, in 10-cc vials containing per cc: 10 mg amitriptyline HCl, 44 mg dextrose, and 1.5 mg methylparaben and 0.2 mg propylparaben as preservatives.

For more detailed information, consult your MSD representative or see the Direction Circular. Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, Pa. 19486

when the diagnosis is depression

ELAVIL® HCl

(AMITRIPTYLINE HCl | MSD)

MSD MERCK SHARP & DOHME

Thorazine®
brand of chlorpromazine
versatility
quality
experience
NOW THERE'S PRICE
Smith Kline & French Laboratories SK&F

Empirin® Compound with Codeine, gr. ½ or gr. 1

Helps overpower pain

Each tablet contains: aspirin gr. 3½, phenacetin gr. 2½, caffeine gr. ½.
No. 3 contains codeine phosphate* (32.4 mg.) gr. ½.
No. 4 contains codeine phosphate* (64.8 mg.) gr. 1.
*(Warning—may be habit forming.)

B. W. Co. narcotic products are Class "B," and as such are available on oral prescription, where State law permits.

Complete literature available on request from Professional Services Dept. PML.

Wellcome / Burroughs Wellcome Co.
Research Triangle Park
North Carolina 27709

ALLERGIC
TO
PENICILLIN

Safety isn't everything in an antibiotic.

Until you need it.

Such as the time when a penicillin-sensitive patient presents the potential for a severe allergic reaction.

Or the patient has impaired kidney function.

Or when age may make tooth staining a matter of consideration.

There is no guarantee of safety—even with Erythrocin.

Mild allergic reactions, abdominal discomfort and rare monilial overgrowth may occur. But serious reactions are extremely infrequent. And after 18 years, there are no known toxic effects on vital organs, bone, blood, nerves or teeth.

We'll ask *you* the question. Have you ever seen a serious reaction with Erythrocin? 103305

ABBOTT

ERYTHROCIN®

ERYTHROMYCIN, ABBOTT

The potency you need– the safety you want

See next page for brief summary, listing indicated organisms, precautions, etc.

Erythrocin®

(ERYTHROMYCIN, ABBOTT)

Brief Summary

Indications

Erythrocin is indicated against gram-positive cocci — staphylococci (most strains), pneumococci and streptococci (including enterococci). Active against other pathogens, such as *Corynebacterium, Hemophilus, Clostridium, Neisseria,* and *Treponema pallidum,* the agents causing trachoma and lymphogranuloma venereum and primary atypical pneumonia caused by *Mycoplasma pneumoniae* (Eaton agent). Establish susceptibility of pathogenic organism when practical. Maintain therapeutic levels for ten days in the treatment of streptococcal infections to help prevent rheumatic fever and glomerulonephritis. Also consider local measures or surgery whenever indicated.

Contraindications

Known hypersensitivity to erythromycin. I.M. preparation also contraindicated in patients hypersensitive to the "caine" type of local anesthetics.

Precautions, Side Effects

Occasionally abdominal discomfort, cramping, nausea or vomiting may occur; generally controlled by reduction of dosage. Mild allergic reactions, such as urticaria and other skin rashes, may occur. Serious allergic reactions have been extremely infrequent; if hypersensitivity is encountered consider appropriate countermeasures, e.g., epinephrine, steroids, etc., and withdraw drug. The rare possibility of overgrowth of nonsusceptible organisms should be kept in mind; if it occurs withdraw drug and institute appropriate treatment. Local venous discomfort, generally mild, may occur with I. V. administration. I.M. preparation is suitable for deep intramuscular administration only; restrict use in children with small muscle mass. A mild transient local discomfort sometimes occurs following rectal insertion of Erythrocin Suppositories; discontinue if significant discomfort persists.

Administration and Dosage

I. ORAL: In adults with mild to moderate infections caused by readily-susceptible organisms 1.0 Gm. daily; more severe infections or those caused by less susceptible organisms 2.0 Grams daily; unusually severe infections up to 4 or more Gm./day. Daily dose in children is 15 to 25 mg./lb./day depending upon severity of infection. Daily dose should be administered in divided doses at 4-to-6 hour intervals. Continue treatment for at least 48 hours after symptoms have subsided and temperature has returned to normal. In fulminating or life-threatening infections, a parenteral form of erythromycin is preferred.

II. PARENTERAL: Intravenous administration may be continuous or intermittent (6 to 8 hour intervals); 1 to 4 Gm. daily in adults; 15 to 25 mg./lb./day in children, depending upon severity of infection. Recommended I.M. dose is 100 mg. (2 ml.) for adults, 50 mg. (1 ml.) for children 30 lbs. or more and 1.4 to 1.8 mg./lb. in smaller children. Injections are usually given at 6 to 8 hour intervals; may be given at 4 to 6 hour intervals for severe infections.

III. RECTAL: Following therapeutic doses are recommended in children: to 20 lbs., 1-125 mg. suppository every 8 hours; 20 to 40 lbs., 1-125 mg. suppository every 6 hours.

Change to oral therapy as soon as practicable.

103305

ABBOTT

Picture of low back pain

treated with Parafon Forte TABLETS

Paraflex® (chlorzoxazone)* 250 mg.
Tylenol® (acetaminophen) 300 mg.

afon Forte tablets help to relieve pain, ore mobility... stop pain-spasm feedback

e is why. PARAFON FORTE provides:

nsalicylate analgesic equal to aspirin for relief of ,[1,2] yet unlikely to cause the gastric irritation[2,3] or in- sed bleeding time[4] associated with aspirin therapy.

a skeletal muscle relaxant shown in extensive clinical ies to be useful in a variety of low back disorders[5-7] it which is not an antihistamine or tranquilizer deriv- e and is unlikely to produce a tranquilizing or seda- effect.[8]

scribe PARAFON FORTE for effective spasmolysis and gesia in acute sprains, strains and myalgias of the r back, including acute exacerbations of chronic con- ns. Your patients will appreciate the restored comfort freedom of movement it usually provides.

. LABORATORIES, INC., FT. WASHINGTON, PA. 19034

McNEIL

Contraindications: Sensitivity to either component. ***Warnings:*** *Usage in Pregnancy*—Use in woman of child-bearing potential only when potential benefits outweigh possible risks. ***Precautions:*** Exercise caution in patients with known allergies or history of drug allergies. If a sensitivity reaction or signs or symptoms suggestive of liver dysfunction are observed, the drug should be stopped. ***Adverse Reactions:*** Occasionally, drowsiness, dizziness, lightheadedness, malaise, overstimulation or gastrointestinal disturbances may be noted; rarely, allergic-type skin rashes, petechiae, ecchymoses, angioneurotic edema or anaphylactic reactions. In rare instances, *Paraflex* (chlorzoxazone) may possibly have been associated with gastrointestinal bleeding. While *Paraflex* (chlorzoxazone) and chlorzoxazone-containing products have been suspected as being the cause of hepatic toxicity in approximately eighteen patients, it was not possible to state that the dysfunction was or was not drug induced. ***Usual Adult Dosage:*** Two tablets q.i.d. ***Supplied:*** Scored, light green tablets, imprinted "McNEIL" —bottles of 100.

References: **1.** Batterman, R. C., and Grossman, A. J.: Fed. Proc. *14*:316, 1955. **2.** Goodman, L. S., and Gilman, A., ed.: The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970. **3.** Vickers, F. N.: Gastroint. Endosc. *14*:94, 1967. **4.** Mielke, C. H., Jr., and Britten, A. F. H.: New Engl. J. Med. *282*:1270, 1970 (Corresp.). **5.** Kestler, O. C., and Gyurik, J.: Industr. Med. Surg. *21*:372, 1962. **6.** Forster, S., et al.: Amer. J. Orthop. *2*:285, 1960. **7.** Data on file, McNeil Laboratories, Inc. **8.** Friend, D. G.: Clin. Pharmacol. Ther. *5*:871, 1964.

*U.S. PATENT NO. 2,895,877

Not too little, not too much... but just right!

"Just right" amounts of Ilosone Liquid 250 can be dispensed easily from the pint bottle in *any* quantity you specify to meet your patients' precise needs—without regard to package size.

ready-mixed

Ilosone® Liquid 250

Erythromycin Estolate

(equivalent to 250 mg. of base per 5-ml. teaspoonful)

Additional information available to the profession on request.
Eli Lilly and Company
Indianapolis, Indiana 46206

Lilly

100204

More Doctors— How Are We Going to Get Them?

MAJOR PROBLEMS concerning physicians, medical care, and hospital services rightfully belong in these editorial columns. However, it is impossible to find a topic which has not been aired in the newspapers, magazines, and on the air — at times practically to the point of exhaustion. At hand are clippings from daily papers, magazines, medical journals and bulletins dating from the summer of 1970 to the present week. Each was set aside soon to be antedated and superseded by others before it had "gotten cold." Most of them predict sweeping changes because of medical costs, and far too many of them place the blame upon the doctors. We have previously commented upon the failure of Medicare with all of its inherent evils. Our profession predicted all of them and we tried to convince our people and Congress of the many reasons why it would not work. But political pressures won out and now that it has failed, whom do they blame but the doctors! The various states have had their research, consultations, investigations, guest speakers, critics and prognosticators. They agree on one sure thing— that medical costs are sky high and becoming more so, destined to be intolerable. We need not wait to demonstrate this point; try to find a person who has recently bailed himself out of a hospital who does not think that time is already here. The concept of excellent health care has been promoted from a privilege to a right. Group health plans, health maintenance centers, and hearings before the Senate Finance Committee are headed toward proposals for comprehensive national health insurance before the next Congress. It is generally agreed that health planning on a state and nationwide basis should save millions of dollars now being wasted on duplication of facilities preventing and curing disease, and in neutralizing environmental health hazards.

The illustrious critic, Ralph Nader, has stated that our profession does not merit the trust placed in it. A study group sponsored by him has proposed that the federal government should set the standards for medical care in hospitals and doctors' offices. The report said that although the world's best medical care has always been practiced in our country, lack of internal quality control within the profession has allowed a great measure of poor medicine to be practiced. Thus, it states, every citizen is at the mercy of a system devoid of uniform standards of quality The report criticized federal government, state societies, licensing officials, and national medical organizations, accusing them of developing the crisis in our health care system and failing to institute effective controls. The AMA ably defends itself and affirms its perpetual work at the national level to promote control of quality and cost. It took an objective look at the Nader report, granting that it is comprehensive and deserving of objective consideration. Some of its recommendations might have merit but others will muddle the many questions.

There are numerous critics within our own ranks. For example, Dr. John H. Knowles, General Director of Massachusetts General Hospital and previous controversial nominee as Chief of Health Affairs in the Department of Health, Education and Welfare, made the headlines recently in stating

that despite expenditure of some $62 billion last year on health care, 40 million Americans have staggering health needs and are virtually bereft of health services. He laid the blame on public apathy, political indifference, bureaucratic inefficiency, and only token concern of organized medicine. In our opinion, these declarations are unrealistic in face of the overwhelming research publicity, and deliberations in all of these areas within our profession. Dr. Knowles made the now trite statement that answers must be found in the private sector of the medical establishment if massive federal intervention is to be avoided. This oft-repeated declaration probably originated over two decades ago and has been warmed over in every possible manner and through every medium perennially throughout this time. We must agree with Dr. Knowles in his criticisms of the deficiencies of Medicaid while agreeing that it is probably best that his appointment as Chief of Health Affairs under former HEW Secretary Robert Finch was wisely thwarted a year and a half ago by the late Senator Dirksen and the AMA. He deserves credit for admitting that organized medicine has done a lot of good in continuing professional education, but we strongly disagree with his declaration that it has been reluctant in heeding social needs of the people. Public and private medical expenditures have increased from $28 billion to $62 billion (seven per cent of our gross national product) in ten years; $22 billion has gone for hospitalization, $12 billion to physicians, and $6 billion for drugs. Less than four per cent has gone into research in proportion to its low priority in the Nixon administration. It is difficult to understand this low priority view of such victories as in the conquest of polio. Naturally physicians "resist consumer-oriented moves to evaluate the caliber of health care delivery." Who else but professionals can fairly evaluate their work? Dr. Knowles criticizes the uneven distribution of doctors and other health professionals. This, indeed, is a fact and it brings us to the point of meeting the prevailing medical manpower shortage and the inadequacy of financing by government and private insurors.

Coverage is decreasing in proportion to medical costs. Neighborhood health clinics, government-funded and hospital supported projects may provide a partial answer, but they are handicapped by high cost of operation and the high disease rates among the disadvantaged. However, early detection and prevention of disease is bound to pay off in the long run. Dr. Knowles believes that only a sweeping change of our system, more and better distribution of medical manpower, overhauling of medical financing, greater emphasis on preventive medicine and health education are the demands we now face.

The most recent newspaper articles have continued to talk about how poorly the nation is meeting the medical needs and what we must do during the next decade to avoid catastrophe. The Carnegie Commission on Higher Education says it will cost the taxpayers an extra billion dollars to train all of the doctors, dentists, and ancillary workers in whose training we now lag. We need nine new medical schools who will join those now existing in seeing that our communities are getting proper health care. It recommends 50 per cent increase in medical students, to 16,400 by 1978 and 20 per cent increase in dental students, to 5,400. It further recommends that two years be chopped off the eight-year medical training period and that dental education shall be three instead of four years. Wisdom of this is debatable when doctors and dentists are expected to know more than they ever did. Perhaps students should be taken into the schools earlier, and possibly there should be a federal doctor corps to serve slum areas. It is encouraging that the percentage of women students, (11), and of black students, (6), entering medical schools had increased as of last fall. However, the Carnegie report emphasizes, our nation is short of medical personnel no matter how we figure it, and too many of them have located in the suburbs of major cities. Partly due to Medicare and Medicaid, demand for services is greater than ever.

In line with these thoughts a thought-inspiring article "How to Get More Doctors" by Donal F. Magee, Chairman of the Depart-

ment of Physiology and Pharmacy at Creighton University was published a few weeks ago. He came right to his main point, "I believe we should take medical students directly out of high school, skip college, and give them a good five, or at most, six-year medical school course." He declares that the years now spent as pre-meds are a waste of time. Furthermore he believes that his plan would solve the present critical shortage of doctors by getting more, younger, and better physicians. Dr. Magee notes that countries who do not demand the preliminary education have medical schools equal to any of ours and that in many areas in our country the colleges are merely trying to make up for what the high schools failed to do. Logically, he states that when our goal is more competent physicians in a shorter time, we can't afford to squander four years. Physical education, foreign languages and English literature are valuable, of course, but they don't help in the practice of medicine! All of us with teaching experience have noted senior medical students who speak and write poor English. Many juniors and seniors in the arts school have not yet passed the freshman English examination required for graduation. Obviously, many are destined to speak and write poorly in any event and henceforth. If you don't believe this, just try your hand at editing a medical journal!

Probably the people are more in need of better medical care than they are of students who spent more undergraduate years in college! Dr. Magee, therefore, proposes that we offer medical school training to the best high school graduates at the age of 17 or 18 and that entrance to medical school should be by examination in high school subjects and by aptitude tests. Thus, for admission to medical school a student would demonstrate his ability to write good clear English, but foreign languages could be bypassed. He would need basic knowldge in mathematics, general science, chemistry and physics. Remedial work could be offered to those who failed but showed intelligence and motivation. Cramming imparts knowledge soon forgotten after examinations are over. Chemistry, biology and physics would be appropriate within the freshman year in medical school and the second year would be devoted to biochemistry, physiology and anatomy and the third to microbiology, pathology, and phramacology. Dr. Magee would introduce clinical medicine to the student late in the third year, carry it through the fourth along with pharmacology and therapeutics. Elective specialty subjects would then be postponed until the fifth year. The clinical years would include "medical sociology" with study of the present problems of society such as malnutrition, poverty, alcoholism and addictions.

We should not turn deaf ears to forward-thinking educators whether or not they oppose our traditions of preliminary and definitive medical education. We are seeking answers to grave and ponderous questions which have everything to do with our profession and the medical requirements of the era in which we live. All proposals with realistic foundations, progressive and realistic proposals, should be weighed and evaluated. Time alone would prove whether new physicians produced by a new educational era would be equal to, or better than, our contemporaries and those who preceded us. Younger doctors going into practice would have fewer financial debts to pay off and less pressure to earn large fees at once. Also, with a forward look to a professional earning career two or three years longer would add incentive to the deliberations of many young people during their period of decision. Let us listen attentively to any plan which will help us avoid an era of medical chaos so glibly predicted by our critics.

The pain of arthritis

relieved with MEASURIN® q. 8h. dosage

Double-strength Measurin timed-release aspirin offers a new kind of control for your arthritic patients. Each 10-grain tablet has over 6,000 microscopic reservoirs that release aspirin at a controlled rate—some right away and some later on. This means—fast relief, followed by long lasting relief. Throughout the day, Measurin gives your patients freedom from a 4-hour dosage schedule. Measurin can help your patients get a good night's sleep, uninterrupted by the need for an extra dose of aspirin. And, taken at bedtime, it also helps ease morning joint discomfort and stiffness.

For Professional Samples write:
Breon Laboratories Inc.
Sample Fulfillment Division
P.O. Box 141
Fairview, N.J. 07022

BREON

BREON LABORATORIES INC.
90 Park Avenue, New York, N.Y. 10016
Subsidiary of Sterling Drug Inc.

MEASURIN®
TIMED-RELEASE ASPIRIN
ECONOMICAL • EFFECTIVE • LONG LASTING PAIN RELIEF
Dosage: 2 tablets followed by 1 or 2 tablets every 8 hours as required, not to exceed 6 tablets in 24 hours. For maximum nighttime pain relief and to help relieve early morning stiffness, 2 tablets at bedtime.
Available: Bottles of 12, 36 and 60 tablets.

Choose the smooth road

to thyroid replacement therapy

The automatic

transition.

Your patients start thyroid therapy smoothly, easily. They feel better all along the way with no metabolic "bumps."

The gradual physiologic action of T_4 SYNTHROID provides virtually an "automatic" transition through the range of complete thyroid replacement therapy.[1]

Predictably responsive!

This kind of comfortable patient response has made SYNTHROID the most widely prescribed brand of thyroid drug in the United States. It's a Cadillac of thyroid medications ... with Volkswagen economy.[2]

The road to normalized thyroid status is a continuous one. You make it smooth and economical with SYNTHROID.

1. The deiodination of T_4 to T_3 at the cellular level has been discussed in the literature. Reprints on the subject are available from the Flint Laboratories Medical Department. Use of T_4 alone therefore provides your patients with a natural hormone combination of T_3—T_4.
2. Patient cost of SYNTHROID is less than a penny a day more than desiccated thyroid. SYNTHROID costs patients nearly 50% *less* than the synthetic combination products: American Druggist BLUEBOOK, March 1970-71

Synthroid®
(sodium levothyroxine)

FREE
MEDICATION DISPENSERS
TO START ALL YOUR PATIENTS ON SYNTHROID, IN THESE STRENGTHS:
0.05 mg. (white); 0.1 mg. (yellow); 0.15 mg. (violet); 0.2 mg. (pink).

seven color-coded strengths plus injectable

Indications: SYNTHROID (sodium levothyroxine) is specific replacement therapy for diminished or absent thyroid function resulting from primary or secondary atrophy of the gland, congenital defect, surgery, excessive radiation, or antithyroid drugs. Indications for SYNTHROID (sodium levothyroxine) **Tablets** include myxedema, hypothyroidism without myxedema, hypothyroidism in pregnancy, pediatric and geriatric hypothyroidism, hypopituitary hypothyroidism, simple (nontoxic) goiter, and reproductive disorders associated with hypothyroidism. SYNTHROID (sodium levothyroxine) **Injection** is indicated in myxedematous coma and other thyroid dysfunctions where rapid replacement of the hormone is required. When a patient does not respond to oral therapy, SYNTHROID (sodium levothyroxine) injection may be administered intravenously to avoid any question of poor absorption by either the oral or the intramuscular route.
Precautions: As with other thyroid preparations, an overdosage may cause diarrhea or cramps, nervousness, tremors, tachycardia, vomiting and continued weight loss. These effects may begin after four or five days or may not become apparent for one to three weeks. Patients receiving the drug should be observed closely for signs of thyrotoxicosis. If indications of overdosage appear, discontinue medication for 2-6 days, then resume at a lower dosage level. In patients with diabetes mellitus, careful observations should be made for changes in insulin or other antidiabetic drug dosage requirements. If hypothyroidism is accompanied by adrenal insufficiency, as Addison's Disease (chronic subcortical insufficiency), Simmond's Disease (panhypopituitarism) or Cushing's syndrome (hyperadrenalism), these dysfunctions must be corrected prior to and during SYNTHROID (sodium levothyroxine) administration. The drug should be administered with caution to patients with cardiovascular disease; development of chest pains or other aggravations of cardiovascular disease requires a reduction in dosage.
Contraindications: Thyrotoxicosis, acute myocardial infarction.
Side effects: The effects of SYNTHROID (sodium levothyroxine) therapy are slow in being manifested. Side effects, when they do occur, are secondary to increased rates of body metabolism; sweating, heart palpitations with or without pain, leg cramps, and weight loss. Diarrhea, vomiting, and nervousness have also been observed. Myxedematous patients with heart disease have died from abrupt increases in dosage of thyroid drugs. Careful observation of the patient during the beginning of any thyroid therapy will alert the physician to any untoward effects.

In most cases with side effects, a reduction of dosage followed by a more gradual adjustment upward will result in a more accurate indication of the patient's dosage requirements without the appearance of side effects.
Dosage and Administration: The activity of a 0.1 mg. SYNTHROID (sodium levothyroxine) TABLET is equivalent to approximately one grain thyroid, U.S.P. Administer SYNTHROID tablets as a single daily dose, preferably after breakfast. In hypothyroidism without myxedema, the usual initial adult dose is 0.1 mg. daily, and may be increased by 0.1 mg. every 30 days until proper metabolic balance is attained. Clinical evaluation should be made monthly and PBI measurements about every 90 days. Final maintenance dosage will usually range from 0.2-0.4 mg. daily. In adult myxedema, starting dose should be 0.025 mg. daily. The dose may be increased to 0.05 mg. after two weeks and to 0.1 mg. at the end of a second two weeks. The daily dose may be further increased at two-month intervals by 0.1 mg. until the optimum maintenance dose is reached (0.1-1.0 mg. daily).
Supplied: Tablets: 0.025 mg., 0.05 mg., 0.1 mg., 0.15 mg., 0.2 mg., 0.3 mg., 0.5 mg., scored and color-coded, in bottles of 100 and 500. Injection: 500 mcg. lyophilized active ingredient and 10 mg. of Mannitol, N.F., in 10 ml. single-dose vial, with 5 ml. vial of Sodium Chloride Injection, U.S.P., as a diluent. SYNTHROID (sodium levothyroxine) INJECTION may be administered intravenously utilizing 200-400 mcg. of a solution containing 100 mcg. per ml. If significant improvement is not shown the following day, a repeat injection of 100-200 mcg. may be given.

FLINT LABORATORIES
DIVISION OF TRAVENOL LABORATORIES INC
Morton Grove, Illinois 60053

As your hypothyroid patients travel along the smooth road, let us be of service in these 4 specific ways:

1 FREE FILM AND BOOK ON HYPOTHYROIDISM: In a 30-minute, 16-mm. sound/color film, 5 prominent endocrinologists discuss "Thyroid Deficiency—Current Concepts of Diagnosis and Treatment". Film available on FREE loan to physician groups or hospitals.

A new book, soon to be published, is devoted to the clinical aspects of hypothyroidism. The author, a leading endocrinologist, describes the many faces of the condition and emphasizes the importance of clinical assessment of the patient. Write, or ask your Flint man, to be placed on our list to receive a free copy.

2 NEW THYROID FUNCTION TEST BOOK: Newly published *Guideposts to Thyroid Therapy* discusses the tests most appropriate for use with each type of thyroid medication. Fully describes thyroid function tests and places their relative values in perspective for physicians. It will give you valuable new insights into the role of these tests in diagnosis and treatment. FREE—ask your Flint man.

3 TO START THERAPY, FREE TAB-MINDER dispensing units, color-coded to match colors of SYNTHROID tablets in starting dosage strengths. TAB-MINDER helps patients to regularly take the thyroid dosage you prescribe, avoid medication errors. Ask your Flint man.

FREE
MEDICATION DISPENSERS
TO START ALL YOUR PATIENTS ON SYNTHROID, IN THESE STRENGTHS:
0.05 mg. (white); 0.1 mg. (yellow); 0.15 mg. (violet); 0.2 mg. (pink).

4 SYNTHROID® INJECTION FOR THYROID EMERGENCIES: Whenever (as in myxedema coma) rapid replacement of thyroid hormone is needed to sustain life, prompt clinical response is essential. SYNTHROID INJECTION makes this therapy instantly available. Useful also in postoperative thyroid medication situations until oral therapy can be reinstated. Ask your Flint man for further information.

FLINT LABORATORIES
DIVISION OF TRAVENOL LABORATORIES, INC.
Morton Grove, Illinois 60053

Pre-hospital phase of an acute coronary attack

Treatment with combination of intravenous and intramuscular lidocaine

Jacobus H. Verhave, MD, Clovis, New Mexico

An attempt to improve the survival rate. Fifty per cent of deaths from heart attacks occur prior to hospitalization.

IN THIS COUNTRY the annual mortality from coronary artery disease is more than 600,000. There are patients with a moderate degree of coronary artery disease and no occlusion or coronary thrombosis who die suddenly and unexpectedly with or without demonstrable histologic evidence of infarction. For such deaths one may assume that arrhythmias are the most likely cause. For this reason the clinical diagnosis of acute coronary attack is preferred to the more speculative diagnosis of acute myocardial infarction.

There is ample evidence that an acute coronary attack does not always have an inexorable consequence, if certain complications such as ventricular ectopic beats, ventricular tachycardia, ventricular fibrillation, bradycardia and congestive heart failure are detected in time.

The introduction of well functioning Coronary Care Units (C.C.U.) decreased the mortality of acute coronary attacks from about 30 per cent to 16 per cent. The most important reason for the success of the C.C.U. is the early detection of potentially fatal arrhythmias through continuous monitoring of heart rhythm with automatic activation of audio and visual alarms by a team of properly trained nurses, and with physicians always present in the hospital during the stay of the patient in the C.C.U.

Lown and Vassaux[1] reported their experience in a C.C.U. Approximately 90 per cent of patients with acute myocardial infarction exhibit disorder of ventricular rhythm, i.e., about 70 per cent ventricular premature beats and about 20 per cent ventricular tachycardia during the initial 48 to 72 hours after hospitalization. These arrhythmias generally do not compromise cardiac function nor are they always perceived by the patient. However, they reflect an underlying electrical instability of the heart with the potential of fatal ventricular fibrillation. Ventricular premature beats (V.P.B.) greater than five per minute or V.P.B.'s interrupting the T wave or salvo's of two or more successive ectopic beats and multifocal V.P.B.'s should be considered as a warning that ventricular tachycardia or ventricular fibrillation is imminent. When ventricular arrhythmias were abolished by intravenous lidocaine in a single bolus, followed by intravenous lidocaine infusion, not a single episode of ventricular fibrillation resulted in 130 consecutive patients with acute myocardial infarction. Prevention of arrhythmias rather than resuscitation improved results of treatment in Coronary Care Units.

The Problem of Non-Hospital Coronary Deaths

Encouraging as this may sound one should realize that only one-third of patients with acute coronary attacks reach the hospital in time to make rescue a possibility. Kuller et al[2] found that 66.8 per cent of 1,030 arteriosclerotic heart disease deaths in Baltimore between the ages of 40 and 60 occurred outside a hospital or were dead on arrival at a hospital. According to the Vital Statistics of the United States[3] approximately 50 per cent of heart attack deaths are pre-hospital deaths in most communities and occur within the first hour after the attack.

To improve this sad situation it was thought that if the coronary disease victim could be identified in the early phase of an attack the mortality could be diminished. This led Pantridge and Geddes[4] to develop and use the first mobile intensive coronary care unit in Belfast, Northern Ireland. They estimated that ventricular fibrillation was 25 times more likely to occur during the first four hours of a heart attack than during the ensuing 24 hours.

Moss et al[5] reported 64 patients with definite or probable acute myocardial infarction admitted to a coronary care unit in Rochester, New York. The average time interval between the onset of symptoms and the patient's arrival in the hospital emergency department was 306 minutes of which only 29 minutes were spent in transportation. The interval between the onset of the patient's acute coronary symptoms and the patient's decision to seek medical help was the dominant factor of the time delay in arrival at the hospital. Since the transportation time made up less than 10 per cent of the pre-hospital period, the value in urban United States of costly elaboratedly equipped and staffed mobile coronary care units must be questioned.

It is clear that to reduce the high toll of coronary artery disease, the decision time to seek medical help, which is the longest portion of the pre-hospital phase, should be decreased. This might be done by a sophisticated public and professional educational programs. Kuller et al[2] reported that in 24 per cent of arteriosclerotic heart disease sudden deaths, the deceased had seen a physician within a week prior to death. Approximately half of these victims had a history of heart disease. Lown and Vassaux[1] recommend prophylactic treatment to prevent fatal arrhythmias prior to transport of the patient to the hospital by intravenous lidocaine administered by a physician or paramedical personnel.

Bondurant[6] suggested prophylactic administration of a self-injecting syringe preloaded with lidocaine and atropine for patients with the well known stigmata of high coronary risk. Atropine may prevent bradycardia, i.e., a ventricular rate of less than 60 beats/minute caused by sinus or nodal bradycardia or block in the S-A or A-V conduction. The ventricular fibrillation threshold is significantly lower at slow heart rates.

Pantridge and Adgey[7] reported their experience with 794 patients with indubitable acute myocardial infarction admitted by their mobile coronary care unit. In 61 per cent of patients with acute posterior infarction who were observed within the first hour, sinus or nodal bradycardia or second degree or complete A-V block was present or developed later. Patients with acute anterior infarction developed this complication in only 40 per cent. Therefore, the early administration of lidocaine and, if bradycardia is present, also atropine in their own homes or at the site of the coronary attack may prevent potentially fatal ventricular arrhythmia and bradycardia during transport to a hospital.

For pain meperidine (demerol, pethidine) is indicated if the heart rate is less than 70/minute because morphine may worsen bradycardia. Unconditional preventive use of atropine cannot be recommended neither alone nor in addition to lidocaine because its side effect of causing difficulty in urination particularly in elderly men. Atropine should be administered only when bradycardia has developed.

Lidocaine

Lidocaine (Xylocaine), a local anesthetic, is a potent drug for ventricular arrhythmia. It was successfully used in 1950 by Southworth et al[8] to terminate ventricular fibrillation precipitated by cardiac catherization. Complete recovery occurred after 45 minutes. Lidocaine is particularly effective to decrease

or abolish ventricular arrhythmias if it is given in proper amounts.

In an experimental study of 21 dogs Lieberman et al[9] reported that destruction of the bundle of His with formaldehyde resulted in complete A-V block. Lidocaine had a negative chronotropic effect on automatic pacemakers of the ventricles to a lesser extent on the atria in these animals. For this reason lidocaine should be withheld in cases of complete heartblock. Gianelly et al[10] found that a necessary bloodlevel to suppress ventricular irritability was 2 to 5 microgram/ml obtained by intravenous lidocaine between 1.4 to 3.5 mgs/min in a 70 kg adult. Rates exceeding 4/mgs/min in a 70 kg adult and blood levels greater than 6.8 microgram/ml caused toxicity, particularly hypotension, stupor and convulsions. They reported intravenous administration of lidocaine for as long as 165 hours without adverse consequences. Killip et al[11] had similar results with lidocaine (1 to 2 mgs/kg) intravenously administered to 24 patients who had frequent (20 to 50 per cent of ventricular rates) ventricular premature complexes. Therapeutic lidocaine bloodlevels of these patients were between 1 microgram/ml and 1.8 microgram/ml. Blood pressure, sinus rate and QRS duration were unchanged.

When lidocaine is administered intravenously in a single bolus there is almost instantaneous effective action for a period of only 15 to 20 minutes. It is cleared from the circulation by hepatic degradation and only 10 per cent is eliminated in the urine. Once the arrhythmia is abolished a continuous intravenous infusion can be adjusted to an adequate level to prevent recurrence.

Rosen et al[12] could abolish premature ventricular beats with a 50 mgs dose of two per cent lidocaine intravenously in four patients but in six other patients the premature ventricular beats only decreased and an additional 100 mgs of lidocaine was needed to abolish them. These authors studied atrioventricular and intraventricular conduction in the same patients before and after rapid administration of lidocaine (1 to 2 mgs/kg) by intravenous injection. Intracardiac electrode catheter recordings of His bundle electrograms did not reveal significant delay in A-V and intraventricular conduction in therapeutic doses. In contrast quinidine and procainamide may prolong A-V and intraventricular conduction.

Dunning et al[13] reported 45 patients with various arrhythmias during the acute phase of myocardial infarction all treated with intravenous lidocaine. Ventricular ectopic beats were suppressed in 31 out of 34 patients and in all five patients with ventricular tachycardia with a single intravenous injection of 100 mgs lidocaine. This effect was maintained by continuous slow intravenous 2 per cent lidocaine in hypotonic saline (sodium chloride 0.65 per cent) at a rate of 100 mgs per hour and no primary ventricular fibrillation occurred. Almost immediately after 100 mgs intravenous lidocaine one-fourth of their patients experienced lightheadedness and sleepiness. Lidocaine failed to influence supraventricular and nodal arrhythmias nor was it effective against terminal ventricular fibrillation secondary to cardiogenic shock. The threshold of ectopic stimuli in milliamps by a pacemaker in the right ventricle was raised 14 to 40 per cent after 100 mgs intravenous lidocaine for 15 minutes, which may be the explanation of its antiarrhythmic effect. The same authors examined the effect of intramuscular lidocaine administration. Therapeutic blood levels of an intramuscular dose of 200 mgs lidocaine were obtained after 15 minutes and maintained for at least one hour.

A combination of 100 mgs lidocaine intravenously and 200 mgs lidocaine intramuscularly had not only instantaneous effect but prolonged therapeutic levels for at least two hours.

Conclusions

From these clinical studies and reports it seems to be justified to draw the following conclusions:

1. Lidocaine (Xylocaine) is a relatively safe and effective drug to prevent and treat potentially fatal ventricular arrhythmias with doses in the therapeutic range. Prolonged intravenous administration for about one week did not cause serious side effects.

2. Lidocaine is not recommended in patients with complete atrioventricular block or sinus or nodal bradycardia. Atropine sulfate 0.6-1.2 mgs subcutaneously will increase the ventricular rate and may prevent ventricular fibrillation.

3. Patients with hepatic insufficiency or congestive heart falure or cardiogenic shock should have lower doses of lidocaine depending on clinical results, because effective therapeutic blood levels will occur due to delayed hepatic degradation.

4. For pain meperidine (demerol, pethidine) is indicated in cases of heartrates less than 70/min because morphine may worsen the bradycardia.

5. Combined administration of 100 mgs lidocaine (5cc of 2 per cent lidocaine) intravenously and 200 mgs of lidocaine (10 cc of 2 per cent lidocaine) intramuscularly will not only have instantaneous effect but will also maintain therapeutic blood-levels for at least two hours. Therefore if this combination is given in the patient's home as early as possible or at the site where the patient is stricken by an acute coronary attack it might decrease the pre-hospital deathrate. In rural areas where the time to reach a hospital may be longer than two hours the same combination can be repeated if the ventricular arrhythmia should recur.

6. For restless patients the combined intravenous and intramuscular administration of lidocaine could be an effective alternative for the more commonly used continuous intravenous infusion following the initial intravenous bolus injection.

7. In hospitals where there is no properly functioning Coronary Care Unit and no 24-hour attendance of physicians and trained nurses, the combined intravenous and intramuscular administration of lidocaine, repeated after two hours intervals if there is no contraindication, might salvage some acute coronary victims during the initial dangerous five to seven days. •

REFERENCES

[1] Lown, B., and Vassaux, C.: Amer. Heart J. 76:586, 1968.
[2] Kuller, L., Lilienfield, A., and Fisher, R.: Circulation 34:1056, 1966.
[3] Vital Statistics of The United States, U.S. Dept. of H.E.W. Vol. II, Part B, Table 7-116, 1966.
[4] Pantridge, J. F., and Geddes, J. S.: Lancet. 2:271, 1967.
[5] Moss, A. J., et al: Am. J. Cardiol. 24:659, 1969.
[6] Bondurant, S.: Am. J. Cardiol. 24:612, 1969.
[7] Pantridge, J. F., and Adgey, A. A. J.: Am. J. Cardiol. 24:666, 1969.
[8] Southworth, J. L., et al: J.A.M.A. 143:717, 1950.
[9] Lieberman, N. A., et al: Am. J. Cardiol. 22:375, 1968.
[10] Gianelly, R., et al: New Eng. J. Med. 277:1215, 1967.
[11] Killip, W., et al: Supplement to Circulation Vol. 36:II 137, Oct. 1967.
[12] Rosen, K. M., et al: Am. J. Cardiol. 25:1, 1970.
[13] Dunning, A. J., et al: Ned. Tydschrift voor Geneeskunde 113:52, p. 2319, 1969.

You Can Order Reprints

of any feature article or advertisement appearing in The Rocky Mountain Medical Journal.

Orders must be placed within 15 days after date of publication. Minimum charge applies for 100 copies or less.

The cost is very reasonable. For further information write to—

The Rocky Mountain Medical Journal
1809 East 18th Avenue
Denver, Colorado 80218

Prophylactic lithium therapy*

Some clinical applications

Edward G. Billings, MD,† Denver

DURING THE LAST DECADE, a new era in the treatment of affective disorders has begun to evolve with the use of lithium carbonate. Predicated on the pioneer clinical research of the Australian psychiatrist Dr. John F. J. Cade,[1] beginning in 1949, clinical trials of lithium were undertaken in Italy, France and Denmark[2,3] and later in the United States at the New York Hospital and the University of Texas Medical Branch at Galveston. The Texas group introduced lithium as a therapeutic agent to American psychiatry in 1965.[4] The Mt. Airy Foundation, with the approval of the Food and Drug Administration, sponsored a study of the efficacy of lithium carbonate in the therapeutic management of mood disorders at the Mt. Airy Psychiatric Center, Denver. This began in September 1966. In the United States, interest in and the use of lithium increased rapidly. Guidelines for its safe usage were determined and finally with the FDA approval, lithium became a standard prescription drug in the spring of 1970 to be used initially in the treatment of manic episodes of manic-depressive disorders.

Between September 1966, and the spring of 1970, 185 patients had been involved in the Mt. Airy Psychiatric Center's treatment program. Of these, the author studied fully and was personally responsible for 31 patients—11 males and 20 females—ranging in age from late adolescence to 72 years. The scientific credulity of the data pertaining to the total patient group is open to argument for many reasons. (1) All patients involved were private patients of individual medical staff-men. Therefore, no designed and uniform criteria as to diagnosis, degree of disability and therapeutic results were possible. (2) No double blind therapeutic test studies could be made. (3) Although there was carefully supervised dispensation of the drug from the hospital pharmacy, and the required pretreatment and periodic clinical laboratory evaluations were made by the hospital, the out-patients involved in the program were not available for joint staff evaluation. Therefore this discussion will be of the 31 patients that were, and are, individually my responsibility. These patients were clinically, laboratorily and psychologically evaluated before and at regular intervals after the institution of lithium carbonate therapy.

From four years of clinical use of lithium carbonate in the treatment of people with mood disorders, several personal impressions have developed. First, lithium carbonate, in therapeutic dosage, has little or no effect on the emotionally normal person.[5] Second, the drug is well at the top of the list of psychopharmocologic drugs in normalizing the mood of the hypomanic and manic patient. It is therefore more acceptable by the hypomanic patient who resents the mere suppression of the symptoms of his elation, as in the instance of chlorpromazine, and who, as a rule, resents being subjected to electrotherapy and indoklon treatment. In severe mania chlorpromazine, electro or indoklon therapy may be necessary to suppress the behavior of the patient until the mood normalizing effects of concurrently given lithium in 6 to 10 days occurs.[6] Third, lithium has little effect by itself in appreciably decreasing the severity and duration of severe depression. However, in conjunction with the tricyclic and MAO inhibiting antidepressants, electro or indoklon therapy, a depression usually is dissipated sooner than if lithium is not used.[7,8] Fourth,

*Presented at the 100th Annual Meeting of the Colorado Medical Society, Colorado Springs, Colorado, Sept. 23-26, 1970.

†1820 High St., Denver, Colo. 80218.

it is now believed by many that lithium carbonate holds substantial promise in the prevention of disabling recurrences of cyclic affective disorders. In my limited experience, when the drug is given continuously in appropriate amounts, it has proved extremely effective in the modification, if not alleviation, of recurrent disorders of mood and the equivalents thereof. The more pure the mood disorder, the more effective is the drug.

It is to the prophylactic value of lithium carbonate that I wish to address myself at this time. In doing so, again in the interest of conserving time, I refer you to a mimeographed clinical epitome or fact sheet about lithium carbonate available here in the lecture hall or at the Mt. Airy Foundation exhibit and shall explain four cases illustrating the prophylactic value of the drug.

CASE REPORTS

Case 1. (Fig. 1) is that of a currently 60-year-old, intelligent and physically well mother of four adult children whom I first saw in mid-1967, when she was in a severe depression. Since age 41 or in 1951, except for one year (1957), she experienced each year a depression usually in the fall and winter and an elation in the summer. When depressed, she could not cope with her home, family and social responsibilities, was often suicidal and in addition to hospitalization, was treated with antidepressants, tranquilizers, electro therapy and psychotherapy. Two to four months were usually required for recovery. When elated, hospitalization was less frequent. Chlorpromazine was usually given and the family and environment were always more disturbed than when she was depressed. On recovery from the elation, she was guilt-laden on account of her behavior when ill and then anticipated with dread the inevitable depression. All in all, she would average three to four months of normal mood a year.

In October 1967, lithium carbonate, 150 mgm. t.i.d. was administered, producing a serum lithium level of 0.5 to 0.65 meq/L. In thirteen days she left the hospital recovered from her depression and was sent home on 150 mgm. of lithium carbonate t.i.d. and sodium chloride, 1 gm. every other day. For three years she has remained normothymic and for the first time in nineteen years has continued functionally efficient. Once in 1968, she recognized the anlage of a depression. Twenty milligrams of a tricyclic antidepressant twice daily in addition to the lithium for one week dispelled this. In 1969 and again this past summer, a very slight rise in mood was evident. Increasing the lithium carbonate to 600 mgm. per day for one week in 1968 and to 900 mgm. per day for two weeks, elevating her serum lithium to 0.72 meq/L in the summer of this year corrected the elation. She continues normal on 150 mgm. of lithium carbonate three times a day, maintaining her serum lithium level at 0.45 meq/L. This case then is illustrative of the person manifesting a cyclic, recurring manic-depressive disorder so far successfully treated prophylactically with lithium.

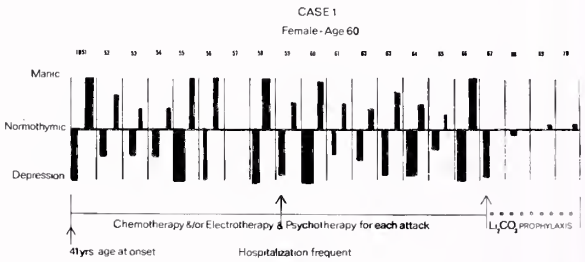


Fig. 1

Case 2. A 64-year-old mother of three grown children first became severely depressed when age 33 (1939) during or just after her first pregnancy (Fig. 2). Two years later in the setting of pregnancy and delivery, depression again occurred as it did with the third pregnancy in 1944. After an interval of two more years, in 1946, a very severe, agitated and prolonged depression occurred. Then for a two year period of normothymic state she, in 1949-50, began regularly each spring to experience severe depressive reactions lasting three to five months. Between 1939 through 1957, hospitalization with electro and psychotherapy was necessary each year. In 1951 and 1952, sustaining electroconvulsive therapy was instituted in an attempt to prevent recurrences of the mood disorder. This was to no avail. Between 1957 and 1966 intensive, ongoing personality analysis was indulged in, and when the inevitable depressions occurred tricyclic and MAO inhibiting antidepressants were used. Each depression ran its usual temporal course but she was spared hospitalization except on two occasions when too ill to care for her personal needs.

Since 1967, she has continuously taken lithium carbonate 150 mgm. t.i.d. and sodium chloride 1 gm every other day—maintaining a serum lithium level between 0.65 and 0.93 meq/L. For thirty-one months, she has been affectively normal despite having to cope with some of the most catastrophic occurrence ever experienced by her. This case then is illustrative of the prophylactic value of lithium in the person experiencing fairly regularly recurring autogenous depressions.

Case 3. This is the history of a person who perhaps best illustrates a severe neurotic type of invalidism that I believe was an equivalent of a basic mood disorder. On October 16, 1965, a 50-year-old, out-of-state man, married twenty years, the father of two nearly grown sons and a long time gainfully employed railroad conductor, was referred because of disinterest, excessive tenseness, tinnitus, numbness of the hands, inappetence,

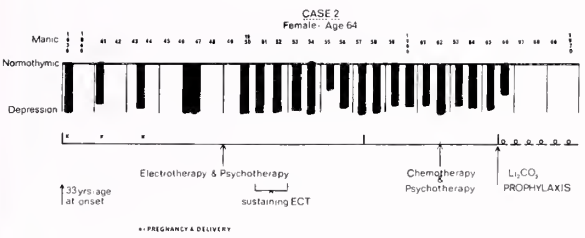


Fig. 2

constipation, dysuria, weight loss, insomnia, impotency, poor concentration, anxiety, apprehension and inability to work regularly. The disability of which he complained began in February, 1964, when he developed periodic, short-lived, frontal headaches, and an attack of vertigo and blurred vision. His home physicians found an essential hypertension, for which an anti-hypertensive was administered, and an early glaucoma for which pilocarpine instillations were prescribed. The next month, March 1964, while on duty, he fell, fracturing the right rib cage, developed a hema-thorax and was unable to work for three months. During the month subsequent to the injury, he became depressed. This rapidly increased when his favorite riding horse was injured. In June and July of 1964, unable to work, he was elaborately studied by internists, neurologists and neurosurgeons in two Denver hospitals. The diagnoses were: reactive depression, essential hypertension and glaucoma. Antidepressants and tranquilizers were administered with only marginal benefit. He returned to part-time work. Nine months after the onset of the illness, or in October, 1964, his home city psychiatrist administered eight EST and antidepressants of all sorts without appreciable benefit. While on three months sick leave from work, in the spring of 1965, he became increasingly depressed, experienced suicidal ruminations and in May of 1965, was given five more EST with some improvement that lasted ten to twelve days. He, continuing on antidepressant medication and having, in desperation, tried osteopathic treatments then in October 1965, came to us for assistance.

His past history was irrelevant except that he was a sergeant in the AAF 1941-1945, married and was steadily employed by the railroad and considered a stable and well-adjusted citizen. Our medical, neurologic and psychiatric studies revealed incipient glaucoma, essential hypertension and a severe, agitated, involutional appearing depression. Fourteen EST were administered. Improvement lasted one week and three more EST (seventeen in all) were given. He was seen in the office twice monthly for what psychotherapy his limitations permitted and for chemotherapy.

There being no improvement and frontothalamic tractotomy and/or prolonged state hospitalization seeming imminent, he was rehospitalized at Mt. Airy Psychiatric Center on July 19, 1968, and started on lithium carbonate, 150 mgm. three times a day and sodium chloride, 1 gm daily on July 24, 1968. His recovery was impressive and for twenty-seven months now, continuing on lithium carbonate, 100 mgm. of hygroton daily for the hypertension and pilocarpine for the glaucoma, he has been asymptomatic, worked steadily and has returned to his normal way of life. His blood lithium level is maintained at between 0.72 and 1.05 meq/L.

Case 4. This woman, when first seen, was age twenty-six, seven years married to a well employed and adjusted husband, the mother of two sons, aged five years and nineteen months, had been emotionally decompensated for eighteen months by reason of recurring acute anxiety and depression. From the time of menarche at age thirteen, excessive tension, depression and marked abdominal "bloating" were experienced from ovulation through the menses. For this syndrome, over a long period, various tranquilizing drugs had been given. Her physical, neurological and biochemical states were normal. Psychiatrically, she was of average intelligence, emotionally labile and manifested acute anxiety and moderate depression—the latter in existence since three months following the birth of the second child nineteen months previously. She came from family stock which, on the maternal side, was colored by chronic, long-term neurotic-depression reactions. With tricyclic antidepressants and psychotherapy, recovery was impressive in sixteen days, but the premenstrual — menstrual accompaniments continued. On continuous lithium carbonate, 150 mgm. twice daily from cessation of menses till ovulation and three times daily from ovulation through menstration, producing a blood serum level of 0.2 to 0.3 meq/L, the patient, without any other medication, has "felt normal" throughout all menstrual cycles.

Of the thirty-one patients under my personal purview the past four years, twenty-five (eighteen females and seven male) have taken the drug continuously and conscientiously for one or more years. They and their families unanimously attest to its normalizing effect on mood and anxiety--tension and therefore to the great saving to them in the alleviation of misery, loss of time and efficiency and cost of frequent hospitalization. Of the six patients (four males and two females) who were dropped from the group, five were terminated because of their gross irresponsibility in taking the drug and refusal to submit to appropriate laboratory, medical and psychiatric studies. The sixth patient, a manic depressive man in his late sixties, developed an inexplicable edema of the lower extremities on two different occasions while on an average lithium intake.

Lest my ignorance of the cause of this phenomenon jeopardize him, he was summarily dropped from the program. It has recently been learned that under another physician, he was successfully placed and maintained on lithium a third time without developing edema.

In the twenty-five patients who were maintained on a carefully monitored lithium dosage, no interferring side-effects have occurred. Two elderly people when overly fatigued have had transitory minimal tremor and four have had an ongoing dryness of the month. This statement regarding few, if any, side-effects occurring in this small, carefully selected and monitored group of patients must *not* be accepted as reassurance as to the safety of the drug. There are several contraindications to the use of lithium salts in the human. A few of these are disordered or unstable renal function, low sodium chloride intake, fasting and crash weight reducing programs, the taking of diuretics, excessive perspiration as in hot weather or special vocations, goitre, pregnancy and electrolyte imbalances.

Lithium carbonate is potent! It has a lower therapeutic index than the usual psychotropic drugs. The margin is very narrow between the amount of the drug needed for therapeutic effect and the amount that is poisonous. If poisoning occurs, emergency and intensive treatment is required.

Before administering lithium salts, one must know thoroughly the patient's physiologic and biochemical status and be able to educate the patient and/or his family as to the effects desired and the side-effects that may be experienced. Be sure your laboratory can do accurate blood lithium determinations and then use the laboratory frequently until the patient has adjusted to the drug and the maintenance dose is stable.

Summary

Lithium is not a panacea for the affective disorders of life, but thus far it is indeed a boon if used with discrimination, patience and respect. At a later date, more detailed accounts of our experiences will be reported. •

Trade Names of the Drug: Lithium Carbonate: Eskalith, Lithane, Lithonate.

REFERENCES

[1] Cade, J. F. J.: Lithium salts in the treatment of psychotic excitement, Med. J. Aust., 36:349-352, 1949.

[2] Kline, N. S.: The History of Lithium Usage in Psychiatry. (Modern Problems of Pharmacopsychiatry.) Basle and New York: S. Karger 1969; and New York; Bruner Maizel, 1970.

[3] Schou, M., Juel-Nielsen, N., Stromgren, E., and Voldby, H.: The Treatment of Manic Psychoses by the Administration of Lithium Salts. J. Neurol & Psychiat., 17:250-260, 1954.

[4] Schlagenhauf, G. K., Tupin, J. P., and White, R. B.: The Use of Lithium Carbonate in the Treatment of Manic Psychosis. Am. J. Psychiat., 123 (2):201-207, 1966.

[5] Schou, M., Amdisen, A., and Thomsen, K.: The Effect of Lithium on the Normal Mind: Psychiatria Progrediens. Eds: Baudia, P., Peterova, E., and Sedivic, V., Plzen, 1970.

[6] Johnson, G., Gershon, S., and Hekimian, L. J.: Controlled Evaluation of Lithium and Chlorpromazine in the Treatment of Manic States: Comp. Psychiat., 9:563-573, 1968.

[7] Zall, H., Therman, P. O. G., and Myers, J. M.: Lithium Carbonate: A Clinical Study, Amer. J. Psychiat., 125:549-554, 1968.

[8] Fieve, R. R., Platman, S. R., and Plutchik, R. R.: The Use of Lithium in Affective Disorders. Amer. J. Psychiat. 125:492-498, 1968.

Pesticide poisonings in rural Colorado

E. P. Savage, PhD, MPH; J. R. Bagby, Jr., PhD; L. Mounce, MS; L. P. Williams, Jr., DVM; P. H. and G. Cholas, DVM, MPH, Fort Collins, Colorado*

Physicians practicing in agricultural areas should be prepared to diagnose and treat pesticide poisonings.

POTENTIAL HEALTH HAZARDS associated with the large-scale use of any chemical agent are extremely difficult to predict, and actual morbidity resulting from the use of economic poisons is difficult to measure because of several factors. These include the fact that most state health authorities do not require morbidity reports of poison episodes, and in many hospitals they are not recorded under the appropriate headings. Long, *et al.*[1] have noted that investigation of the relationship of the use of pesticides to human health is one of the most difficult epidemiologic problems.

Zavon[2] has noted that development of many new chemicals and increased usage of pesticides have resulted in increased exposure of man to chemicals. He has stated that for a physician to arrive at a presumptive diagnosis of illness due to a chemical the following must occur: (1) the victim must have been exposed to a significant amount of the chemical, (2) the illness symptoms must have commenced with the time of action of exposure, (3) the symptoms described must be those which can be caused by the chemical or chemicals to which the patient received a significant exposure. Hayes[3] has noted that factors that influence toxicity include the interaction of compounds, dosage, schedule of dosage, duration of dosage, route of exposure, species and strain differences, sex, age, nutritional status, presence of disease, and certain environmental factors.

An Institute of Rural Environmental Health was established in October, 1969, at Colorado State University supported by a founding grant from the W. K. Kellogg Foundation. As an initial effort of the newly formed Institute, a survey of hospital records was conducted in 15 hospitals in 12 rural communities in Colorado to determine environmental chemical problems that might have occurred. This paper reports the pesticide accidents that resulted in hospitalization.

Methods

The administrator was contacted at each hospital and objectives of the Institute were explained in detail. After this introduction, the hospital librarian or records administrator was asked for data of chemical poisonings during the past two to five years. Changes in coding methods in use by some of the hospitals made it possible to gather comparable data from some for only two years and from others for longer periods. Pertinent data were recorded from each record of interest. Only cases that required hospitalization are discussed in this paper. The Community Pesticide Study at Greeley, Colorado had laboratory information on a few of the cases reviewed. When information from the laboratory was available, it was used in the case summary.

*Institute of Rural Environmental Health, Department of Microbiology, College of Veterinary Medicine, Colorado State University, Fort Collins, Colorado. L. Mounce, M.S., is the Director, Community Pesticide Study, Colorado State Health Department, Greeley, Colorado.

A total of 14 cases of poisonings by pesticides are reported. The poisonings were treated in hospitals in Burlington, Fort Collins, Montrose, Canon City, and Greeley, Colorado. A brief description of each case follows:

CASE REPORTS

Case 1: A 37-year-old Spanish American male employed as a sweeper by a spraying company liked to "mess around" with the spray equipment. During August, 1969, while so engaged, he was accidentally sprayed in the face with parathion. He was admitted to a hospital, received atropine treatment, and was discharged two days later with no apparent sequalae. The aerial applicator warned the victim about the hazards of pesticides and told him to stay away from the airplanes. In spite of these warnings a few weeks later the man was again accidentally sprayed with parathion. He was found unconscious and died before any type of treatment could be administered.

Case 2: The second death attributed to parathion occurred in an 11-year-old white male who died after apparent parathion exposure. The boy was admitted to the hospital during March, 1965. The onset of illness was on March 17, 1965, when the boy returned home from school and complained of nausea and abdominal pains. A cholinesterase (ChE) test (type not stated) was conducted with a report that the result was next to the "highest on the color chart." A tracheotomy was performed and 1000 mg. of protopam chloride was administered on March 22. The boy died during the third day of hospitalization.

Case 3: This 14-year-old white male, a brother to the boy in the case reported above, became ill on March 13. His condition gradually worsened and he was admitted to the hospital on March 23. A test revealed a low ChE level. Both atropine and protopam chloride were administered. The boy recovered and was discharged from the hospital on March 27.

Case 4: A 27-year-old white housewife was hospitalized during August, 1967, for treatment from overexposure to malathion. She had applied the insecticide to a field crop a few hours earlier and had not bathed after the application. The patient fully recovered and was released after three days of hospitalization. No further epidemiological information was available.

Case 5: During June, 1967, a white, 29-year-old bookkeeper was flagging for an aerial applicator in his off duty hours. During the course of the aerial operation he was sprayed with parathion. He was treated with atropine at a hospital and released. Two weeks later while driving a truck for the company where he was employed he was again exposed to parathion which had been spilled in the cab of the truck during the episode two weeks earlier. After the new exposure the patient complained of nausea, leg cramps, and weakness. He was again hospitalized, treated with atropine, and made an uneventful recovery.

Case 6: A 16-year-old white female was hospitalized for an illness diagnosed as possible insecticide poisoning. The day prior to admission the girl was in a room which had just been sprayed with an insecticide (type unknown). She developed symptoms that included muscular weakness and blurred vision. Because of her symptoms and history of pesticide exposure she was diagnosed as having a possible case of parathion poisoning. She was hospitalized for two days.

Case 7: This case involved the poisoning of an 18-month-old girl who had eaten strychnine treated rice. She was hospitalized and treated by gastric lavage and charcoal prior to release one day later.

Case 8: In late July, 1969, a 24-year-old farm laborer of Spanish American descent became ill while applying a mixture of Phosdrin and naled (dibrom), with ground spray equipment to cabbage. He wore a respirator and gloves, but was unaware of the necessity for protecting his skin from contact with the spray material. He did not wear protective clothing on the arms and torso. Approximately two hours after starting work the man complained of headache and nausea. He continued to work with the spray material, however, and by late afternoon he experienced onset of marked muscular weakness. He was treated with a small dose of atropine sulfate by a physician. The next morning, severe headache, nausea and muscular weakness persisted and the physician ordered hospitalization.

Clinical findings were consistent with those of mild, acute organo-phosphate intoxication. The patient responded satisfactorily to a total of 7.5 milligrams of atropine sulfate and 2.0 grams of pralidoxime sulfate. An interesting feature of the patient's response was failure of the cholinesterases to rise after treatment with pralidoxime. In fact, cholinesterase assays obtained on blood obtained three days after exposure yielded results which were lower than those obtained prior to treatment. This is consistent with prior observations that pralidoxime is rather ineffective in releasing phosdrin-induced cholinesterase inhibition. The patient returned to work four days after the onset of illness.

Case 9: During early May, 1970, a 35-year-old farmer became so weakened, fatigued, and cyanotic that he was hospitalized the day after his symptoms first developed. Atropine and 2-PAM were administered the first morning of his two-day hospital stay. He recovered with no apparent

residual effects. Epidemiologic investigation revealed that he had worn work gloves for several days that were soaked with liquid Di-Syston, [o,o-diethyl 5-2-(ethylthio) ethyl phosphorodithioate] which he had been incorporating into the soil. The ChE readings were low, and an analysis of his blood serum by gas-liquid chromatography utilizing the flame photometric detector revealed the presence of considerable Di-Syston.

Case 10: A two-year-old girl ate lindane pellets (probably two) intended for use in an insecticide vaporizer while visiting at a neighbor's house with her mother. The pellets were in the original container which looked like an ordinary pill vial with a snap off plastic lid. Shortly after ingestion the child convulsed, vomited and was taken to a doctor's office where phenobarbitol, adrenocorticotrophic hormone (ACTH) and oxygen were administered. She was then hospitalized where she received Phenergan and was placed in a croupette. The child subsequently recovered and apparently suffered no ill effects.

Case 11: An 18-month-old child ate a small amount of D-con, a commercial rat bait containing warfarin, an anti-coagulant. No symptoms were shown on the medical records. The patient was hospitalized, treated with vitamin K, and discharged the next morning.

Case 12: This 87-year-old white male was admitted to the hospital in June, 1969, with a complaint of a sudden attack of dizziness and extreme perspiration following the use of a pesticide formulation (active ingredients unknown) on roses in his yard. He made a complete recovery during a 24 hour hospitalization.

Case 13: On June 27, 1970, a 17-year-old part-time employee of a pesticide application firm was admitted to the hospital with fatigue, headache, dizziness, blurred vision, nausea, vomiting, abdominal cramps, and muscular weakness. Treatment with 2-PAM and atropine relieved the symptoms and the patient was released after a stay of one and a half days. ChE determinations indicated probable exposure to organo-phosphate insecticide and the patient's response to the treatment substantiated this conclusion. Cholinesterase values were as follows:

Date	Plasma	RBC
6/27/70	1.90 μM/min/ml	8.25 μM/min/ml
6/29/70	1.70 μM/min/ml	11.40 μM/min/ml
7/ 7/70	2.66 μM/min/ml	13.03 μM/min/ml

Case 14: On July 28, 1970, a 56-year-old employee of a formulating plant, was admitted to a hospital with the same symptoms as described in case number thirteen, and in addition exhibited profuse sweating, salivation and constricted pupils. Before hospital admission the patient had been cleaning out an elevator pit which was used in formulating Phosdrin. The bin was in a small confined underground area, and, although the patient was wearing protective clothing, goggles, and a mask, he suffered a dermal exposure. The summer seasonal high temperature and a high humidity at the time had contributed to excessive sweating. As Phosdrin is water soluble, it is believed that his damp clothing led to a rapidly increased exposure to the chemical. The patient responded to treatment with Protopam and atropine and was released from the hospital the following day. ChE levels five days before and shortly after exposure were as follows:

Date	Plasma	RBC
7/23/70	4.09 μM/min/ml	12.08 μM/min/ml
7/28/70	1.66 μM/min/ml	5.98 μM/min/ml

Discussion

Table 1 shows the age, sex, ethnic group, occupation, pesticide involved and outcome of the pesticide poisoning cases. Only two (14 per cent) of the cases studied resulted in death. Parathion was the pesticide incriminated in both instances. Parathion and Phosdrin accounted for 50 per cent of the hospitalizations. The age of hospitalized patients ranged from 18 months to 87 years, and half of the cases occurred in ages 17 or under. Only one of these under 17 years of age was exposed while working. The three cases that occurred in children under two were all caused by the toxicants being left in a place readily accessible to the children.

The patients discussed were all hospitalized for treatment with the exception of the first one—the fatal parathion case. That victim had been hospitalized during a previous exposure. In eight (57 per cent) of the cases the exposure was experienced during an occupational activity — one sweeping a crop duster storage area, five field applications, one cleaning an insecticide bin and one driving a truck in which parathion had been spilled previously. Epidemiological studies, if conducted on the two boys in cases 2 and 3, poisoned by parathion exposure, were not recorded. Therefore, the exact nature or extent of their exposure is unknown.

The dermal LD_{50} in males of the materials involved in the Colorado cases range from 4.7 mg/kg for Phosdrin to >4444 mg/kg for malathion. Parathion, the pesticide suggested in the two deaths has an LD_{50} of 21 mg/kg.

Table 1

PESTICIDE POISONINGS IN RURAL COLORADO
1965-1970

Age	Sex	Ethnic	Occupation	Pesticide	Outcome
37	M	Spanish American	Sweeper Spraying Co.	Parathion	Fatal
11	M	White	Student	Parathion	Fatal
14	M	White	Student	Parathion	N-Fatal
29	M	White	Part-time Flagger	Parathion	N-Fatal
16	F	White	Student	Unknown	N-Fatal
1½	F	White	Child	Strychnine	N-Fatal
24	M	Spanish American	Ground Applicator	Phosdrin	N-Fatal
35	M	White	Farmer	Di-Syston	N-Fatal
2	F	White	Child	Lindane Pellets	N-Fatal
27	F	White	Ground Applicator	Malathion	N-Fatal
1½	?	White	Child	Warfarin	N-Fatal
87	M	White	Retired	(Raid) Unknown	N-Fatal
17	M	White	Part-time Appl. firm	O.Phosphates	N-Fatal
56	M	White	Formulating Plant empl.	Phosdrin	N-Fatal

Hayes[4] has noted that the organic phosphorous insecticides are absorbed by the skin as well as by the respiratory and gastrointestinal tracts. Absorption by the skin tends to be slow, but because the insecticides are difficult to remove such absorption is frequently prolonged. Skin absorption is somewhat higher at warmer temperatures and absorption is much greater in the presence of dermatitis.

Since the use of some of the persistent chlorinated hydrocarbon pesticides is being restricted, those materials will probably be replaced by less persistent pesticides. In many cases the chlorinated hydrocarbons will be replaced with more toxic materials such as parathion.

The accidents that have been reviewed in this study were caused by one or more of the following: (1) Ignorance or indifference to the hazard, (2) poor storage of materials, (3) lack of use of adequate protective clothing, and (4) inadequate supervision.

All of the cases occurred in agricultural areas of the state. Pesticide poisonings severe enough to require hospitalization did not occur in communities at an elevation greater than 6,500 feet. Although there were not enough cases to place any significance on this fact, it is an interesting observation. Results of these observations suggest that physicians practicing in hospitals located in the Rocky Mountain area that serve agricultural areas should be prepared to effectively diagnose and handle pesticide poisoning cases. Physicians practicing in rural agricultural areas should be thoroughly acquainted with the spray materials being used in their areas of practice. A book entitled, "Clinical Handbook on Economic Poisons" by Wayland J. Hayes, Jr., MD, PhD[4] is available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 80402. This book carries names of poisons, signs and symptoms of poisoning in man, routes of absorption, pharmacologic action, treatment, and toxicology for each compound. A film entitled, "Treatment of Organic Phosphate Poisonings" is available from the National Medical Audio Visual Center (Annex) Station K, Atlanta, Georgia 30324. The Institute of Rural Environmental Health, Department of Microbiology, Colorado State University, also has copies of this film that are available on short term loan.

Davis, *et al.*[5] have noted that the determination of the cause of death in organo-phosphate pesticide poisoning is not simple. Such diagnosis depends upon history, clinical observation, and laboratory tests. The clinical manifestations of organo-phosphate pesticide poisoning include miosis, weakness and collapse, muscular fasciculations, cutis anserina, diapharesis, pulmonary edema, nausea, vomiting, and diarrhea. However, not every patient evidences a set pattern of clinical responses, and when first seen by a physician the clinical signs may be confused with those associated with encephalitis, brain injury, hypertensive encephalopathy, pneumonitis, asthma, gastroenteritis, congestive heart failure, and other syndromes.

When workers handle phosphate ester insecticides on a regular basis they should have periodic determinations of cholinesterase activity. The frequency of these will depend upon the effectiveness of the environmental controls, the discipline of the workers, and the toxicity and amount of pesticides handled. Usually the time interval between tests varies from one to four weeks. The above determinations have little meaning unless a baseline test is done on all personnel that handle phosphate materials prior to their first exposure to any of these insecticides in any given spray season.[6]

Results of the Colorado studies have indicated that all rural hospitals located in areas of high pesticide use should be capable of performing cholinesterase assays. Since virtually all hospitals now have a photometer or a spectrophotometer, a rapid photometric determination for cholinesterase in whole blood or red blood cells can be made by the Ellman method.[7] Other simplified methods and colorimetric kits are available which are inexpensive.[8] •

REFERENCES

[1] Long, Keith R., Victor B. Beat, Augustin K. Gombart, Raymond F. Sheets, Henry E. Hamilton, Francisco Falaballa, Dean P. Bonderman, and Un. Y. Choi: American Industrial Hygiene Assoc. Journal, Vol. 30, May-June, 1969.

[2] Zavon, Mitchell R.: General Chemical Epidemiological Investigations, a paper presented at Chemical Epidemiology Course, Atlanta, Georgia, November, 1968 (unpublished).

[3] Hayes, W. J.: Factors Influencing Toxicity, a paper presented at the Chemical Epidemiology Course, Atlanta, Georgia, November, 1968 (unpublished).

[4] Hayes, W. J., Jr.: Clinical Handbook on Economic Poisons, Emergency Information for Treating Poisoning, U. S. Department of Health Education and Welfare, Public Health Service, Publication No. 476, 144 pages, Revised 1963, Reprinted 1967.

[5] Davis, J. H., J. E. Davies, and A. J. Fisk: The Occurrence, Diagnosis and Treatment of Organo-Phosphate Pesticide Poisonings in Man, Annals of the New York Academy of Sciences, Vol. 160, Art. 1, pp. 383-392, June, 1969.

[6] Golz, Harold H., C. Boyd Shaffer: Toxicological Information on Cyanamid Insecticides, 80 pages, Cyanamid International, American Cyanamid Company, Wayne, New Jersey, August, 1966.

[7] Ellman, George L., K. Diane Courtney, Valentino Andris, Jr., and Robert M. Fiatherstoni: New and Rapid Colorimetric Determination of Acetylcholinesterase Activity, Biochemical Pharmacology, Vol. 7, pp. 88-95, 1961.

[8] Aldrich, F. D.: Cholinesterase Assays: Their Usefulness in Diagnosis of Anticholinesterase Intoxications, Clinical Toxicology, 2(4), pp. 445-448, December, 1969.

Malignancies of the cardiovascular system

Alexander Schirger, MD, Rochester, Minnesota*

Some of the less common malignancies that originate in the cardiovascular system are discussed. The clinical findings are emphasized so as to aid in the diagnosis, which not only may be difficult but also may involve a medical emergency.

MALIGNANCIES OF THE cardiovascular system are not the most common type of malignant disease affecting man. However, because they originate in structures intimately connected with the transport of blood, the hallmark of their clinical findings is usually rapid dissemination and a relentlessly downhill course. Often there is only a brief period when, by early recognition, the physician can prevent an ultimately fatal trend of events and institute therapy when chances for cure still exist. The relatively difficult diagnosis and the usually rapid downhill course justify presentation of the relevant characteristics of malignancies of the cardiovascular system.

Malignancies of Blood Vessels

Malignancies of the blood vessels can be grouped into five categories: hemangioendotheliomas, hemangiosarcomas, K a p o s i ' s sarcomas, primary tumors of the aorta, and lymphangiosarcomas.

Endotheliomas are malignant tumors and can be diagnosed by their histologic appearance. Their clinical course is not dissimilar to that of hemangiosarcomas and thus will not be considered separately. Hemangiosarcomas are uncommon tumors that may develop in persons of any age and in any part of the body. Because they originate in the blood vessels, these lesions are characterized by rapid invasive growth and early metastasis. As the original tumor grows, central necrosis may develop (Fig. 1 *A*), and there may be bleeding within the tumor and into the surrounding structures. Characteristically, the lesion is bluish red and occasionally

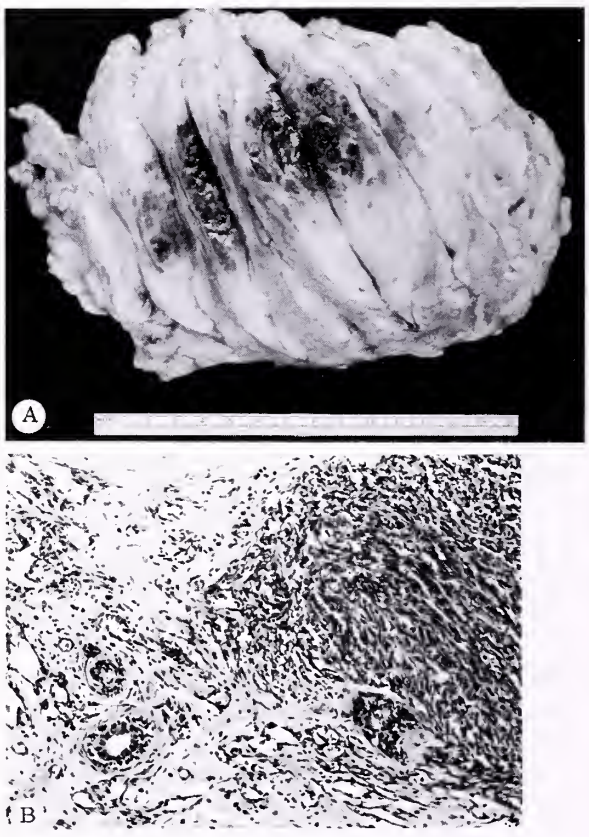


Fig. 1. Hemangiosarcoma of the breast. A, *Surgical specimen.* B, *Microscopic appearance. (Hematoxylin and eosin; x130.)*

*Dr. Schirger is in the Mayo Clinic and Mayo Foundation, Division of Cardiovascular Diseases and Internal Medicine. This paper was read at the meeting of the Wyoming State Medical Society, Moran, Wyoming, September 1 to 4, 1970.

may have associated satellite nodules. Many mitotic figures and polymorphic nuclei indicate a high grade of malignancy (Fig. 1 *B*).

Kaposi's sarcoma is characterized by a course that is not ultimately and rapidly fatal. Of those affected, 90 per cent are men, and in our environment the lesion has its peak occurrence in persons in their fifth or sixth decade. Among some races, as for instance the South African Bantu, such lesions occur at an earlier age. Characteristic pinhead to pea-sized lesions initially appear on the hands and feet and later develop into plaques and painful nodules (Fig. 2). The tumor usually progresses slowly but may metastasize early. The metastatic lesions may represent multiple primary foci. When the tumor occurs in a young person, the prognosis is not good because the course is usually more rapidly downhill. However, Kaposi's sarcoma is one of the tumors of the blood vessels that seems to respond satisfactorily to local x-ray therapy.

Lymphangiosarcoma is a tumor that was recognized only during the last quarter of a century. For some time, clinicians have been

Fig. 2. Characteristic appearance of patient with advanced Kaposi's sarcoma.

Fig. 3. Advanced lymphangiosarcoma of right upper extremity in patient with postmastectomy lmyphedema (Stewart-Treves syndrome).

aware that a malignant tumor may develop in the lymphedematous arm of women with long-standing lymphedema after radical mastectomy for carcinoma of the breast (Fig. 3). This lesion has been ascribed to metastasis or recurrence of the original carcinoma of the breast. Earlier, pathologists had noted a peculiar transformation of the original histologic nature of the tumor, but gave no explanation for this puzzling histologic variation. In 1948, Stewart and Treves[1] called attention to the specific syndrome of lymphangiosarcoma in patients with long-standing postmastectomy lymphedema. Since their description, which resulted in use of the eponym "Stewart-Treves syndrome," this condition has been found in more than 200 patients. At the Mayo Clinic, approximately 20 such patients have been seen, the majority of whom have been reported by Taswell et al.[2]

Characteristically, the tumor appears in a patient who has been well, who has been free of metastasis or recurrences from an original carcinoma of the breast, and who has had mild-to-moderate postmastectomy lymphedema of the arm for many years. The patient suddenly becomes aware of a bluish lesion on the lymphedematous arm. Most often, the patient thinks that the lesion is a bruise, even though few have recalled a specific injury that would account for the bluish lesion, which first appears as ecchymosis. Usually, the patient seeks medical attention when the lesion ulcerates and other bruises develop around it. These, of course, represent

central necrosis of the original tumor and the appearance of satellite lesions. By this time, distal metastasis to the lungs may be evident. Thus, a patient in whom a painless bruise develops in a postmastectomy lymphedematous arm should have an immediate biopsy of the lesion. Sometimes a tumor may appear in an extremity that has long-standing idiopathic lymphedema. This condition has been referred to as Kettle's syndome, which was originally described by Kettle in 1918.[3]

Once the true histologic nature of the seemingly innocuous bruise has been established, appropriate treatment should be instituted without delay. This, in the opinion of our group, includes radical amputation at the level of the shoulder or hip and subsequent x-ray therapy. The advisability of adjunct systemic or intralymphatic chemotherapy remains unsettled.

Recently, a patient with a rare primary malignancy of the abdominal aorta has been seen at our institution.[4] The patient with malignancy of the abdominal aorta has symptoms and signs of aorto-iliac occlusive disease, that is, intermittent claudication in the calves, thighs, and hips, of relatively brief duration. Suprisingly, the characteristic aortic calcification, which one expects to see on plain roentgenograms of anterior, posterior, and lateral views of the lumbar spine, may be absent. Suspicion that a tumor exists should be aroused by the associated presence of multiple ulcerating embolic lesions on the toes of the patient. These lesions do not heal and may have a slightly different appearance than the cutaneous infarctions usually seen in the course of atherosclerotic aorto-iliac occlusive disease. An aortogram of this patient and a biopsy of the lesions were done. The patient underwent operation whereby the abdominal aorta was replaced successfully by a Dacron graft; however, he died seven months later.

Malignancies of the Heart[5]

Cardiac tumors may be primary or secondary. Primary malignant tumors of the heart are almost exclusively sarcomas. These may produce clinical findings of relentless unexplained heart failure with cardiomegaly, hemopericardium, and cardiac arrhythmias. There may be evidence of obstruction of the tricuspid valve or evidence suggestive or obstruction of right ventricular outflow.

Commoner than primary tumors of the heart are metastatic lesions from tumors located elsewhere in the body. Metastatic tumors of the heart are 20 to 40 times commoner than primary malignant tumors of the heart. At autopsy, Cohn and associates found evidence of metastasis in 20.6 per cent of 315 patients with malignant tumors. In other studies, the percentages were 13.9 and 10.9. The commonest forms of metastatic tumors to the heart are carcinoma of the lung in men and carcinoma of the breast in women. Leukemia, lymphoma, and myeloma also may commonly involve the heart. Bisel and colleagues found metastatic cardiac involvement in 44 per cent of their series of 119 patients with leukemia.

Melanomas have a tendency to extend to the heart. Metastatic tumors of the heart commonly give rise to three types of clinical manifestations: (1) congestive heart failure, (2) disturbances of rhythm, and (3) pericardial effusion. The appearance of any or all of these three cardinal signs in a patient with malignant disease and a previously normal heart should alert the clinician to the possibility of myocardial involvement. Atrial fibrillation appearing de novo in a patient with known malignant disease should arouse suspicion of the possibility of cardiac metastasis. Cardiac rupture may result from metastasis to the heart, and neoplastic involvement of the pericardium, in addition to hemorrhagic and nonhemorrhagic pericardial effusion, will result in constrictive pericarditis. •

REFERENCES

[1] Stewart, F. W., and Treves, N.: Lymphangiosarcoma in Postmastectomy Lymphedema. Cancer, 1:64, 1948.
[2] Taswell, H. F., Soule, E. H., and Coventry, M. B.: Lymphangiosarcoma Arising in Chronic Lymphedematous Extremities: Report of Thirteen Cases and Review of Literature. J. Bone Joint Surg. (Amer.), 44:277, 1962.
[3] Kettle, E. H.: Tumours Arising From Endothelium. Proc. Roy Soc. Med., 11:19, 1918.
[4] Winkelmann, R. K., Van Heerden, J. A., and Bernatz, P. E.: Malignant Vascular Endothelial Tumor With Distal Embolization—A New Entity. Amer. J. Med. (In Press.)
[5] Fowler, N. O.: Cardiac Diagnosis. New York, Hoeber Medical Division, Harper & Row, Publishers, 1968, 722 pp.

A
BUILDING BLOCK
TO RECOVERY

"Welcome back, Ann"
As adjunctive therapy
DOUBLE STRENGTH
Orenzyme®
Bitabs One tablet q.i.d.
Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units, equivalent in tryptic activity to 40 mg. of N.F. trypsin
Reduces swelling
Hastens healing
Speeds recovery
trauma
One tablet q.i.d.
Indications: When used as adjunctive therapy for the rapid resolution of inflammation and edema, good results have been obtained in:
□ Accidental Trauma □ Postoperative Tissue Reactions.
Other conventional measures of treatment should be used as indicated. In infection, appropriate anti-infective therapy should be given.
Contraindications: ORENZYME BITABS should not be given to patients with a known sensitivity to trypsin or chymotrypsin.
Precautions: It should be used with caution in patients with abnormality of the blood clotting mechanism such as hemophilia, or with severe hepatic or renal disease. Safe use in pregnancy has not been established.
Adverse Reactions: Adverse reactions with ORENZYME have been reported infrequently. Reports include allergic manifestations (rash, urticaria, itching), gastrointestinal upset and increased speed of dissolution of animal-origin surgical sutures. There have been isolated reports of anaphylactic shock, albuminuria and hematuria. Increased tendency to bleed has also been reported but, in controlled studies, it has been seen with equal incidence in placebo-treated groups. (See Precautions.) It is recommended that if side effects occur medication be discontinued.
Dosage: One tablet q.i.d.
THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144
TRADEMARK: BITABS U.S. PATENT NO. 3,004,893 9/70 0-009A 161

Orenzyme® Bitabs

Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units; equivalent in tryptic activity to 40 mg. of N.F. trypsin

The causes of vaginitis are multiple

Trichomonads... monilia... bacteria
You can depend on AVC—comprehensive therapy that combats all three major vaginal pathogens, alone or in combination.

AVC
Cream (aminacrine hydrachlaride 0.2%, sulfanilamide 15.0%, allantain 2.0%)

Suppositories (aminacrine hydrachlaride 0.014 Gm., sulfanilamide 1.05 Gm., allantain 0.14 Gm.)

Contraindications: Known sensitivity to sulfanamides.
Precautions/Adverse Reactions: The usuol precautions for topical and systemic sulfonamides should be observed because of the possibility of absorptian. Burning, increosed locol discomfort, skin rash, urticaria or other manifestations of sulfonamide toxicity are reosons to discontinue treotment.
Dosage: One applicotarful or one suppository intravoginally once or twice daily.
Supplied: Creom – Four-ounce tube with or without applicator. Suppositories – Box of 12 with opplicator.

TRADEMARK: AVC AV-104 2/71 Y-149

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

AVC
The treatment is singular

Preliminary evaluation of Rocky Mountain States Cooperative Tumor Registry

Charles R. Smart, MD and W. Knox Fitzpatrick, MD,
Salt Lake City, Utah†

THE MOST IMPORTANT question to be answered by advocates of tumor registry is also the most fundamental: Can tumor registries improve patient care and survival, and will the results justify the time, effort, and money involved? In September, 1966, those responsible for the Intermountain Regional Medical Program (IRMP) assumed the affirmative to this question and believed that this registry could be accomplished more effectively, efficiently and economically through the cooperative effort of multiple hospitals and states through utilization of modern computer technology. By July, 1968, through the endeavor of nearly all cancer-interested health organizations in Colorado, Idaho, Montana, Nevada, Utah, and Wyoming, a consensus was obtained to establish a six state cooperative registry called The Rocky Mountain States Cooperative Tumor Registry (RMSCTR). These independently operated state registries agreed to use the same abstract, follow-up form and computer programs. They were to be funded by the three regional medical programs, Colorado-Wyoming, Intermountain and Mountain States. Funding, state approval, and organization varied somewhat from state to state. There have been three phases of development: (1) the gathering phase of organizing the hospitals which wanted to participate, abstracing their cases and getting them on the computer, (2) the output phase of sending out follow-up letters and computer reports to physicians and hospitals, (3) the analysis phase of scrutinizing the data, survival curves, etc.

Table 1 shows each state's starting date in the "The Rocky Mountain States Cooperative Tumor Registry," number of hospitals thus far involved, number of cases on the computer, and phase of development. During the past four years of experience, it has become apparent that a great many factors play a role in the success or failure of tumor registries. Simply having a registry computerized is certainly no guarantee of success. A useful registry requires good hospital records, adequately trained and dedicated tumor registry secretaries or field workers, current abstracting methods, accurate coding and keypunching, quality controls, and current follow-up of patients. It requires accurate and well-designed computer programs that can produce reports useful to physicians in influencing patient care. Even if all of the above work perfectly, the registry may still fail because of a lack of involvement of the medical profession.

**A computerized registry system, a confederacy of Colorado, Idaho, Montana, Nevada, Wyoming and Utah State Tumor registries.

†Dr. Smart is Director, Rocky Mountain States Cooperative Tumor Registry. Dr. Fitzpatrick is Director, Utah State Cancer Registry.

TABLE 1

Rocky Mountain States Cooperative Tumor Registry

State	Starting Date	Hospitals Participating	Cases on Computer	Phase of Development
Utah	1967	44	30,828	III
Wyoming	1968	40	4,722	III
Colorado	1969	22	19,072	III
Idaho	1969	15	4,396	II
Montana	1970	20	2,538	I
Nevada*	1970	4	669	I
		145	62,225	

*Nevada has held a statewide registry since 1959. However, it has only been contributing cases to RMSCTR since 1970.

Results must be evaluated in the light of the previously defined goals and objectives of the registry. The goal of improved cancer patient care and survival requires several years of operation before it can be evaluated, and even then it will be difficult to relate specifically to any role played by a registry. The objectives stated in the guidelines of the RMSCTR are: (1) To provide meaningful feedback to the medical profession regarding cancer in their practice, hospital, state, and the Rocky Mountain area. (2) To facilitate the systematic follow-up of cancer patients on a yearly or six-month basis in a manner that may save patients' lives by early detection and treatment of second primaries, local recurrence, recurrence in regional lymph nodes, and solitary distant metastases. (3) To define areas of further research and assist planning. (4) To determine baselines such as early diagnosis, treatment, and survival in various malignant diseases which will assist in the programming and evaluation of educational endeavors.

By modifying the evaluation measurements used in educational program (attendance, opinion, gain in knowledge, change in behavior), one can develop the following parameters for the evaluation of cancer registry objectives: (1) Participation, (2) Opinion or attitude of the physician or patient, (3) Improvement in the prevention or diagnosis of cancer, (4) Improvement in the management of the cancer patient, (5) Improvement in the survival of the cancer patient.

Evaluation Results

As the Utah Registry has been in operation the longest and has the largest number of registered cases, and because the guidelines of the RMSCTR retain in each state the entire responsibility for running a central registry within that state, Utah has been used as the sample state for studies on the value and effectiveness of the system.

There are 30,828 cancers registered in the Utah Registry from 44 hospitals, and patients are being followed by 772 physicians. Many patients have been registered in several hospitals, and others have had the majority of their treatment outside the state. These amount to 6,520 patients and are classified as non-analytic and are ignored when considering state-wide incidence and survival figures. Of the 24,308 analytic patients, 11,955 (49%) are dead and 12,353 (51%) were alive as last reported. Of the latter group, 2,750 have not been reported as being seen or examined within the past two years and are therefore considered "lost to follow-up." These constitute 22.3% of the living group or 11.6% of all analytic cases. The per cent follow-up in the Utah Registry is therefore 88.4. Physicians have given the registry permission to trace and attempt to return to medical care 585 patients who were lost to follow-up. Of this group, 158 (27%) were found to be under another physician, 242 (41.3%) promised to return or returned to their physician's care, 87 (15%) were unable to be traced, 86 (15%) were dead and 12 (2%) refused to return to any medical care. Table 2 shows the distribution of cancer patients by their physicians' specialty.

TABLE 2

Relation of Medical Specialty to Number of Cancer Patients

Specialty	Dr's	Patients	Patients/Dr
Surgery	138	7,748	55
G.P.'s	252	3,417	14
Int. Med.	122	3,059	25
Radiation Rx	5	2,676	535
OB GYN	80	1,897	24
Urology	23	1,778	74
Neurology & Surg.	17	563	33
ENT	26	358	14
Pediatrics	43	294	7
Orthopedics	35	196	6
Ophthalmology	26	127	5

Three studies were carried out to determine the value and effectiveness of the follow-up letters in physicians' offices. (1) A telephone interview was carried out with 102 physicians' office personnel. The offices were chosen according to the number of follow-up letters they were receiving (1-10, 11-49, 50+) and also by the size of the community in which they practiced (under 3,000, 3,000 to 10,000, over 10,000). Only eight offices had a system that would contact the patient if he failed to keep an appointment. Most offices depended entirely upon the patient to return at the time of his appointment. Eighty-five per cent of the follow-up letters were completed by the physician, 11 per cent by the nurse and 4 per cent unknown.

(2) A study to determine the necessity for a tumor registry follow-up letter reminder was carried out in the offices of four volunteer physicians. A tumor registry representative took the physicians' tumor registry follow-up letters and compared them to the physicians' charts to see if it was necessary to have a stimulus for follow-up. These four physicians all had a special interest in cancer and of the 581 patient records checked in their offices, 143 patients (25%) had not been seen within the past year and had to be called in for reexamination.

(3) A survey questionnaire was distributed at the Scientific Meeting of the Utah State Medical Association. At this particular session there were 50 physicians in attendance and 41 questionnaires were filled out and returned. Seventy-three per cent of the physicians felt the registry had been of value or assistance to them in following their patients. Of the 27 per cent that felt it had been of no value, three did not treat cancer patients, two had not received any letters, and two disregarded them. A postcard questionnaire evaluating the physicians' semiannual computerized patients summary with reference to the pertinent literature and five year local and national survival rates was sent out

TABLE 3

Physicians' Evaluation of Computer Reports by Questionnaire September 1970

Type Practice	Number Sent	Number Response	%	Little	Some+	Frequent=	Favorable
G.P.	257	59	23%	12	33	11	74%
Surg.	138	42	30%	5	26	12	90%
Int. Med.	122	38	31%	15	14	8	58%
OB-GYN	80	15	19%	3	7	5	80%
Peds.	43	10	23%	4	4	1	50%
Ortho.	35	4	11%	0	4	0	100%
ENT	26	10	39%	0	4	6	100%
Ophthal.	26	3	12%	1	2	0	66%
Urol.	23	4	17%	1	2	1	75%
Neuro.	17	0					
Radiol.	5						
Totals	772	185	24%	41	96	44	75%

in the fall of 1970 to the 772 physician caring for cancer patients. The results are tabulated in Table 3 showing that 75 per cent of physicians felt these reports were of some value. One hundred-three felt the medical references had been of value, while 82 did not care for them.

Summary

As of January, 1971, 62,225 cancers have been rgistered in the RMSCTR from hospitals in six states. Limited studies were presented on the value and effectiveness of the registry system in Utah.

Ninety-two per cent of physicians' offices surveyed reported having no check-up system to insure the return of their cancer patients for periodic re-examinations.

In the offices of four physicians interested in following and re-examining their cancer patients, follow-up letters stimulated the re-examination of 25 per cent of their cases which would otherwise have been missed.

Ninety-four per cent of the 772 physicians seeing cancer patients have 90 per cent or better follow-up on their patients.

Seventy-five per cent of physicians surveyed felt that the registry was of some value to them and most desired the continuation of references to the medical literature and local and national five year survival rates for specific malignancies.

While the results thus far are encouraging, there is still need for further improvement—2,750 lost patients for re-examination! •

ANNOUNCING
THE TWELFTH CONGRESS
OF THE
PAN-PACIFIC SURGICAL ASSOCIATION
FEBRUARY 26 TO MARCH 4, 1972*

Hilton Hawaiian Village Hotel

Honolulu, Hawaii

CONCURRENT MEETINGS WILL BE HELD IN

Anesthesiology

Colon & Anorectal Surgery
General Surgery
Neurosurgery
Obstetrics & Gynecology
Ophthalmology
Orthopedic Surgery
Otolaryngology
Plastic Surgery
Thoracic-Cardiovascular
Urology

For Details, Write Cesar B. DeJesus, M.D., Pan-Pacific Surgical Association
236 Alexander Young Building, Honolulu, Hawaii 96813

*Please note change in date from March 3 to March 4, 1972.

Combating drug abuse in Wyoming

James G. Haller, MD,* Cheyenne, Wyo.

THE PAST DECADE has seen the rise of a new problem for society which can be labeled many things, but "drug abuse" is the most common term applied. This term refers to the widespread use among the youthful population of various substances, in a manner unacceptable to society as a whole. It encompasses everything from glue sniffing to heroin. Perhaps no other activity of the next younger generation has ever given so much concern to the established generation of our country.

It is not my intention to elaborate on the elements of drug abuse which are so commonly known to all of us from the medical and lay publications and the news media. I would comment instead, on the various proposed causes of the phenomenon, the size of the problem, what has been done in Wyoming in regard to solving the problem, and finally, I will relate it to the overall problem of mental health in Wyoming and general.

Causes

The causes of drug abuse as presented here are speculative on my part, and are arrived at by evaluation by comments of many other persons on the subject, including the American Medical Association's Committee on Alcoholism and Drug Dependence. One cause is the general increased use of drugs in a so-called legitimate sense in society. As physicians you need not be lectured on this matter. Tranquilizers, anti-depressants and sedatives are some of the most oft-prescribed drugs in our pharmaceutical armamentarium.

Another contributing factor is the complex confusing civilization of today, in contrast to the relatively simple life of our frontier forefathers. Adolescence has always been a confusing period, but coupled with the serious sociologic problems, technologic advances and demands of today, adolescence is even more perplexing for the present generation of youth. Communications and transportation methods today offer to this generation a means of obtaining, relaying and evaluating the methods that many of their peers are utilizing to cope with their adolescent struggles, and stimulates the individual to try more sophisticated methods of attempting to cope with his own problems.

One of the main underlying problems of drug abuse and other types of social rebellion today is the affluence of our society and the destruction of the family unit. Without question modern America is one of the wealthiest countries in history. You and I belong to a generation fostered in the depression, exposed to a World War which affected every aspect of our lives, a cold war and the Korean Conflict. In turn, we have also resolved to never subject our offspring to such trials. We collectively have produced a generation which has never experienced directly the difficulties of going hungry, unkempt and cold. To be sure, Vietnam has exposed hundreds of thousands of young Americans to as unholy a war as has ever been raged. But it has directly touched only a small segment of Americans, while the rest of us have actually prospered financially from it. We are now reaping the rewards of a gross national product never before exceeded in our history.

Coupled with these factors is the rise in the numbers of working mothers and an increase in divorces in our society. These have left the rearing of the present to the day

*Chairman, Mental Health Committee, Wyoming State Medical Society.

nursery, the baby-sitter and the school system. The firm belief in God and long accepted moral standards of our Puritan culture have simultaneously been declining to the point that it is only with tongue-in-cheek that we can be called a Christian society. In other words, we have failed to give our youths a set of values which can guide them through the adversities of adolescence. Instead, we have bought them off. We have given them new cars, better homes, precooked meals, schools of a quality undreamed of as far as physical facilities are concerned, and an abundance of leisure time.

How serious is the problem in Wyoming? By Denver's or New York's or Los Angeles's standards, we are well situated. By our own standards, however, we do have a problem. Over a two year period from 1967 to 1969, the Wyoming State Hospital in Evanston had 329 admissions from Laramie County and for all categories of illnesses. Of these, 12 were admitted for treatment of drug abuse. Of these 329 admissions, 185 were resident patients and 144 were non-residents. Of the 12 admitted for drug abuse, 11 were residents. The figures for the present year will be higher.

The number of arrests in the recent months over the state reflects a growing problem in most of the larger communities, with Cheyenne, Laramie, Casper and Jackson being the greatest sources of concern. Over the same period used for admissions to Evanston quoted above, Laramie County recorded a total of 96 arrests for drug abuse. This does not reflect the number of *users* who were referred to their parents without an arrest being made. This is not a problem of the scope of the metropolitan areas, but is certainly problem enough for us to be concerned. We are in a strong position to prevent the development of the problem of the magnitude of the metropolitan areas.

Exactly what is being done in this regard? The Mental Health Commission of the Wyoming State Medical Society brought this subject to the attention of the state authorities in late 1968. We proposed a three-pronged attack on the problem which involved: (1) Education, both of the public and of professionals involved; (2) Legislation and law enforcement; and (3) Treatment.

Education

In February 1969, a two day seminar on drug abuse was presented in Casper, Wyoming, by the Mental Health Committee of the Wyoming State Medical Society. This was supported in part by the National Institutes of Mental Health and the Western Interstate Commission for Higher Education (WICHE). This meeting was attended by 53 Wyoming physicians, and the complete proceedings were published in book form by WICHE, titled *Drug Addiction and Drug Abuse*. Copies of this were distributed to each physician in Wyoming and to many others, and it is presently available from WICHE.

In May of 1969, Governor Stan Hathaway appointed a committee on drug abuse which was charged with the responsibility of preparing a Governor's Conference on Drug Abuse in Casper for school officials, law enforcement officers, judges, county attorneys, and other interested persons. This meeting was attended by nearly 500 individuals from various elements of society, and was very effective in bringing the problem to the attention of many communities which were not directly involved in it. As a result of these meetings and other events, many of the school districts in the state began preparing or enhancing programs of drug abuse for use in their curricula. The State Department of Education, under the direction of Harry Roberts, increased its efforts to accumulate material, train personnel and assist the school districts in their efforts. The Governor's Committee on Drug Abuse met and further solidified the State's support on this type of educational program, and took steps to see that these programs would be readily available to all who requested them.

Legislation and Law Enforcement

The Wyoming Legislative Session of 1969 saw the enactment of more rigid laws for the sellers of the various dangerous drugs and the softening of the penalties of the occasional user of marihuana. The most significant accomplishment was the classification of the selling of LSD, amphetamines and other dangerous drugs into the category of a felony rather than a dismeanor. In addition, the Governor's Committee on Drug Abuse has met with officials of the Justice

Department of the Federal Government to lay the ground work for the correlation of state laws with a forthcoming revised set of federal laws to deal with drug offenses. Many law enforcement agents in the state have attended training programs in the detection of drugs and the proper methods in investigation and apprehension of violators.

Treatment

At the present time, no form of therapy has proven to be universally successful for drug users. The Wyoming State Hospital instituted the Drug Abuse Rehabilitation Program for Youth (DARPY) last year and has had some success in this regard, but is basically hamstrung for several reasons. The problem lies at the community level, and in addition, the staff at the state hospital is under-manned for rendering the necessary time to a program such as this. Last but not least, follow-up care leaves much to be desired in the majority of the areas of the state. In most areas, treatment is left to individual physicians and understaffed mental health centers, and a few of these resources are geared to the necessary treatment modalities these patients require.

Relation to Mental Health

How does the problem of Drug Abuse relate to the overall problem of Mental Health in Wyoming? As we mentioned earlier, the causes of the drug abuse are many, and this problem is basically a symptom and not a disease entity. The best treatment of it, as with nearly all other forms of mental illness, is its prevention or early detection.

This can be accomplished by the educational programs referred to above, by training the physicians, teachers, priests, ministers, police and parents in methods of detecting persons who have emotional disorders or who are drug users. Once detected, the necessary referral resources are needed for the definitive diagnosis and treatment of these early cases.

I think it is extremely important for us to realize that there are a multitude of people, far in excess of the number of drug users, who are also in need of this same kind of early detection and care. And only when we place drug abuse in this perspective will we arrive at a meaningful solution as to how to care for it. There is a great cry in the State of Wyoming for half-way houses, hot lines, extensions of the DARPY program to the communities and treatment facilities for drug users. There hould be just as great a cry far facilities for the chronic schizophrenic, the sociopaths, the child with the learning disability and many many others. What we really need in Wyoming are the primary facilities that are assumed to be in existence when we talk of these half-way houses, hot lines, etc. When a half-way house, such as *Turnstile* in Denver, for instance, comes into existence, it already has at its disposal, the various mental health facilities that serve the entire city of Denver and eastern slope of the Rockies. In Wyoming, unfortunately, we lack these primary facilities in most places.

The establishment of these broad based primary facilities, should, at this time be our major concern in this state. Using these as a base then, we could build a multitude of specialized programs for individual groups needs. We could then implement alcoholic programs, drug abuse treatment programs, and a variety of other selective type programs.

At this time a survey of the facilities available in Wyoming for mental health services is in the process of being taken by the Wyoming State Medical Society. Results of this are not available at this time, but should be ready for presentation at the Annual Meeting of the Society in Jackson, Wyoming this fall.

Let me give you, however, the goals of the Division of Mental Health of the State of Wyoming for its Regional Mental Health Centers. These are spelled out in a publication titled, *"Establishing and Financing Community Mental Health Services in Wyoming."* These goals were spelled out nearly ten years ago.

"The long-range goal of the Division of Mental Health is the establishment of regional mental health centers . . . such centers would be staffed with a psychiatrist . . . a clinical psychologist; a psychiatric social worker; an occupational therapist; and such other personnel as needed, (i.e., attendants and nurses.) These regional Mental Health Centers would provide the area they served with the following services:

1. Acute intensive in-patient treatment for psychiatric patients in need of hospitalization.

2. Day hospital and night hospital care for psychiatric patients.

3. Out-patient clinic treatment of persons with emotional illness or emotional problems.

4. Follow-up care of patients discharged from the State Hospital and from the acute intensive treatment unit of the local mental health center.

5. Consultative services to the general hospital.

6. Consultative services to community agencies and to community professionals, and

7. Educational programming in the area of mental health.

The Short-range Goals are the following:

1. Direct work with individuals having personal, emotional, and psychiatric problems.

2. Consult with professional persons in the area, e.g. physicians, ministers, lawyers, etc.

3. Offer consultation to the public agencies of the area.

4. Conduct in-service training programs in welfare departments, schools, hospitals, staffs, etc.

5. Provide educational programs of a broader nature for such specialty groups as teenagers, young married couples, young parents, etc.

6. Be available for speaker service to church groups, service clubs, and other civic organizations in order to stimulate community planning for mental health, and

7. Provide follow-up service for persons discharged from the State Hospital."

Upon completion of this analysis of the mental health facilities of Wyoming, an evaluation can be made as to whether the goals established ten years ago by the Division of Mental Health are being met and whether the goals need to be re-evaluated.

Conclusion

As practicing physicians in Wyoming, if we are to assume the mantle of the responsible profession for the health needs for the people of Wyoming, we must be willing to exert ourselves in the discharging of the attendant responsibilities that go with that mantle. Far too long we have left a void in this area of mental health and have then been indignant because others have sought to fill that void. It is high time that we, as responsible physicians, exert every influence and effort that we can to see to it that the problem, not only of drug abuse, but the total problem of mental health in Wyoming is resolved in a manner in which we can justifiably take pride. •

COLORADO STATE SCIENCE FAIR — APRIL 16-17, 1971

As in the past, The Colorado State Science Fair competition will be held in Boulder. The Fair is open to the public on Saturday, the 17th and the Awards luncheon will be held at noon in the Glenn Miller ballroom of the University of Colorado Memorial Center. Plan to visit the exhibits and exhibitors on Saturday at the National Bureau of Standards and at Baseline Junior High School in Boulder. You will enjoy seeing these talented young people accept their awards at the luncheon.

Dr. Calvin Fisher, Fair Director, announces that an invitation has been submitted to the International Science Fair headquarters in Washington, D.C., to hold the 1977 International Science Fair in Denver. A decision on the location will be made this year at the Kansas City International Fair to be held in May.

Organ transplantation and the law*

H. Richard Beresford, MD, JD, Denver

Now that transplantation has become one method of treating patients with irreversible failure of certain organs, it is important that there be principles of law which protect the interests of donors and recipients.

TRANSPLANTATION IS A new form of treatment and, partly because of this, applicable law does not provide clear answers to certain fundamental questions. Thus, suppose a kidney transplant recipient who is receiving immunosuppressive drugs develops cancer.[1] Should his physicians have informed him that cancer was a possible consequence of immunosuppression? Or, suppose a physician declares an organ donor dead after determining that the brain has ceased to function. Is he disregarding the donor's interests in the eyes of the law if the donor has some remaining cardiac function?[2] The courts eventually may be asked to resolve these and other questions. In the meantime, physicians should appreciate what guidelines exist and what legal problems they may anticipate in their handling of transplant patients. This study selectively reviews rules of law and other factors which relate to the legal responsibilities of physicians who care for organ transplant donors and recipients. While there are uncertainties in some areas, the applicable law and developing standards of medical practice provide extensive safeguards for the rights of donors and recipients.

*From the Division of Neurology, Denver General Hospital and the University of Colorado Medical Center, Denver. The author is Assistant Professor of Medicine (Neurology), University of Colorado School of Medicine; Fellow, American College of Legal Medicine.

Environmental Factors

Several environmental restraints act upon physicians who would perform transplants. First, the nature of the procedures requires that physicians have considerable technical skill and an understanding of the immunologic problems they will encounter. Because of this and the necessity for performing the operations at major medical centers, the physicians who engage in transplant procedures in the immediate future shall be relatively few, well-trained, and highly visible.

A second restraint is embodied in those medical ethics applying to new or experimental surgical procedures. The Judicial Council of the American Medical Association has provided specific ethical guidelines for physicians engaged in organ transplantation.[3] These strongly emphasize the need to protect equally the rights of both donor and recipient. They provide that determination of death of transplant donors be made by at least one physician other than the attending doctor, using all available accepted tests. They stress the importance of full disclosure of the risks of transplantation and the available alternatives. And, they hold that only competent, knowledgeable physicians should attempt such procedures, using the facilities of a major medical center. A corollary of this restraint is that centers in which transplant surgery is done usually have their own internal regulations governing the use of novel or experimental procedures. These regulations customarily adopt the principles set forth in the AMA's ethical guidelines. In addition, where a transplant program is supported by federal funds, as many are, Public Health Service regulations which govern clinical investigation involving human subjects require that informed consent be obtained, and specify other safeguards of patients' rights.[4]

The combination of these factors establishes an atmosphere which encourages involvement of qualified persons, sets a high technical and scientific standard, and fosters a careful concern for the rights and safety of patients.

Consent of Donors and Recipients

No physician may lawfully perform an organ transplant unless he has obtained the informed consent of the donor and recipient, or their legal representatives.[5] What constitutes informed consent is sometimes difficult to define and standards vary among jurisdictions. In general, informed consent to a procedure is that which is voluntarily given following an explanation of the indications, hazards, and reasonably predictable outcome of the procedure. The nature of the procedure will determine how much detail should be provided to the patient. In the area of novel or experimental surgery, a full exposition is essential. For example, a court might find that a kidney recipient did not give informed consent to a transplant when no physician told him that post-operatively he would be required to take medications which might alter his appearance or increase his susceptibility to serious infection. Similarly, it would be improper to mislead a recipient into expecting a better result from transplant surgery than is warranted on the basis of previous experiences with a particular operation. After considering the pertinent data, an occasional patient may exercise his right to choose death from his disease rather than a transplant. A living donor should, of course, be informed of the predictable hazards of his giving up an important paired organ such as a kidney, even though the risk to him is small.

Once he has been informed, an adult may, during life, freely donate a non-vital organ to a specific recipient or medical facility. A major problem with respect to donors has been obtaining authorization for use of organs after death. Until recently, although the laws of many states permitted an adult person, during life, to provide for the transfer of his organs after his death to specific persons, hospitals or medical schools for transplantation or other uses, the procedures were sometimes cumbersome and were little used.[6,7] The Uniform Anatomical Gift Act which, as of this writing, has been adopted in substance by 48 states and the District of Columbia, will facilitate post-mortem organ dispositions by simplifying consent procedures.[6-8] The Act specifies that persons over 18 years of age may, during life, authorize organ donations to take effect after death. It generally requires that the donation be made in a writing witnessed by two persons, including a will. A uniform donor card has been devised, execution of which by a prospective donor and two witnesses, will comply with the provisions of the Act in most states which have adopted it.[7,8] With respect to a deceased person, adult or minor, who did not execute the appropriate instrument during his lifetime, the Act further empowers his next of kin to authorize donation after his death. This authorization may be in the form of a simple unwitnessed written document, a telegram, or a recorded telephone or other recorded message. If a person authorizes donation during life, and his next of kin object after his death, the Act provides that the donor's wishes shall prevail.

The status of organ donations by persons under 18 is not entirely clear. If a living minor is able to understand the consequences of organ donation and his informed consent and that of his parents or guardian are obtained, the basis for finding of appropriately informed consent exists.[9] The case of Bonner vs. Moran[10] suggests that some showing of "benefit" to the living minor should be made before his organ donation will be held lawful, although this interpretation of the case has been called unsound.[9] If physicians still harbor doubts about the lawfulness of consent by a minor donor, they may seek court approval.[9,11,12] In any event, the consent of his parents or guardian is essential.[9].

If a potential recipient is unconscious or otherwise unable to consent, his next of kin may consent on his behalf.[6] An occasional situation may arise where an unconscious recipient requires a transplant in order to survive, and his next of kin refuses authorization. Existing law does not provide a ready answer to this problem. The emergency treatment doctrine might protect a physician who proceeds to transplantation under these circumstances. This doctrine is, in general, that

a physician who treats a patient who is too ill to consent to treatment and who would quickly die if treatment were withheld is not liable to the patient or his family for unauthorized treatment.[13] Where the unconscious potential recipient is a minor and his parents refuse transplantation, there is some precedent for proceeding with transplantation under court order. Thus, there are court decisions appointing a guardian to approve urgently needed blood transfusions for the children of non-consenting Jehovah's Witnesses.[14,15] But, since transplant surgery carries a far greater risk than blood transfusion, a court might recoil from ordering a transplant against parental wishes. In a more practical vein, few physicians would perform major surgery on a child without parental consent.

Determining Time of Death

If a donor or his next of kin has authorized the use of his organs for transplantation after death, determining when his death occurs is often an important issue. In the present state of the art, prospects for a successful transplant are better if organs are taken as soon as possible after death. If death is deemed to occur only after circulation and respiration have failed, the donor's organs are often not in an optimal state for transplantation.[16] To meet this problem, the concept of brain death has evolved.[17] This concept is that death occurs when brain function ceases. Use of this definition of death may permit the taking of the donor's organs at a time when circulatory function is intact and the organs are being well-perfused with blood. In fact, some transplant physicians have adopted the brain death concept in determining when it is proper to take a donor's organs.

The courts have generally adhered to the traditional notion that death is the final cessation of vital functions, including the heart beat, circulation and respiration.[18] This definition implies that death occurs at a specific time.[19] The argument that death occurs when resuscitation is impossible or the brain has ceased to function has been rejected by courts.[19,20] However, these cases did not face the precise question of whether a physician acted too hastily in declaring death. Since courts generally accept the principle that determination of the fact of death lies within the special competence of the physician,[9] it seems unlikely that a physician would encounter legal difficulties if he determines time of death on the basis of generally accepted medical criteria. The law, however, must protect the donor from the remotest chance of overzealous declaration of death by a physician. Thus, the physician must meticulously adhere to the agreed criteria. As the criteria for brain death become widely accepted, it is reasonable to expect that in one context or another the courts will be asked to approve them. Eventual approval seems probable. Nevertheless, physicians who declare death of potential transplant donors solely on the basis of cessation of brain function should recognize that the law does not yet expressly sanction their acts.

The present criteria for establishing brain death make unlikely a too hasty declaration of death. They forcefully stress that no present evidence of brain function or prospect of reversibility of brain damage exist. The most widely publicized criteria are those of the Harvard *ad hoc* committee[21] which include the following: no response to any stimuli, no spontaneous movement or respiratory activity, no reflex activity (including deep tendon reflexes, pupillary light reflexes, oculocephalic reflexes, or response to caloric stimulation), and a flat electroencephalogram. If these findings persist for 24 hours, and hypothermia and drug ingestion are excluded as possible causes of coma, the committee's view is that it is proper to declare that death has occurred and to terminate external supports of respiration or circulation. Others have accepted the fundamentals of the Harvard committee but have offered modifications of their own. For example, some would not require two flat EEG's at a 24-hour interval.[22] Other tests may be helpful in determining absence of brain function, such as angiographic proof of non-filling of cerebral vessels or proof from sampling of carotid arterial and juglar venous blood that the brain is not utilizing oxygen.

If a physician follows the criteria of the Harvard committee and determines that death has occurred, there appears to be little medical basis for holding that his assessments

of the state of brain function or the irreversibility of brain damage were wrong.[23] It follows that it would be difficult to prove in court that he made a factual error in determining that death had occurred. Where an organ transplant is contemplated, an attending physician must, however, seek the consultation of at least one other physician before declaring that death has occurred.[3] The consultant obviously should not be a member of the transplant team.

Although the brain death concept arose because of developments in the art of organ transplantation, it has wider ramifications. Physicians and others have often felt objections to what seems the futile prolongation of mere vegetable life. General adoption of the brain death concept would, in principle, allow the declaration of death in many comatose patients with irreversible brain damage. There are obvious advantages to this in terms of economic use of medical facilities and in shortening the hopeless vigil of a patient's family. If the brain death concept is sound for the purposes of taking organs from young persons with acute brain injuries, it seems at least equally valid for use in declaring the death of chronically ill aged persons with non-functioning brains. Broad application of the concept would, therefore, meet the objection that a "double standard" exists in medical circles that encourages early declaration of death only in the transplant setting. However, because determining brain death in accordance with the present criteria is not always a simple task, wholesale use of the concept in preference to the easier determination of death on the basis of cessation of cardiorespiratory functions seems unlikely. Also, because of the remote possibility of premature declarations of death resulting from careless application of this concept, some will continue to hold that the concept of brain death should not be afforded legal recognition.[12]

Relationship With Coroners and Medical Examiners

If a potential transplant donor has been injured by another person, the medical examiner or coroner is usually required by law to certify the time, place, and manner of his death. Therefore, where an attending physician has reason to believe that a potential donor has been assaulted, poisoned, or otherwise harmed by the act or omission of another person, he must notify the medical examiner or coroner in his jurisdiction before proceeding with transplantation.[24] This is a minimum requirement.

It is probably advisable to notify the medical examiner or coroner in all potential transplant cases, as is the practice in many centers where transplants are performed. Following this practice will avoid controversies which might later arise if the donor has an unsuspected cause of death. After notification, the medical examiner or coroner may then investigate the case and determine whether, and to what extent, the donor's organs may be used for transplantation. In general, medical examiners and coroners will not approve donors who are suspected homicide victims or whose deaths may give rise to other forms of criminal or civil liability.

If a medical examiner or coroner approves the use of a donor's organs for transplantation, he may still reserve the right to perform a medico-legal autopsy after transplantation has occurred. He may also specify or limit the organs which may be used in order to prevent destruction or removal of evidence essential to arriving at a cause of death. He may seek the attending or transplant physician's cooperation in obtaining blood tests or other tissue samples before or after death. In exceptional cases, he may wish to attend the transplant operation himself in order to examine certain tissues during surgery. Following these various steps will allow him to discharge his legal responsibilities with respect to determining the cause of the donor's death.

The medical examiner or coroner usually relies upon the attending physician's determination of the time of a person's death. However, where the attending physician follows the relatively novel brain death concept in determining time of death, a potential area of conflict arises. A medical examiner or coroner who firmly follows the traditional rules for deciding when death occurs may take exception to the attending physician's conclusion.[2] To avoid this type of problem,

attending and transplant physicians should communicate in advance with the medical examiner or coroner in their jurisdictions to ascertain his view with respect to the brain death concept. If the medical examiner or coroner accepts the brain death concept, he will probably require that the donor-patient's chart reflect criteria used in determining time of death and the names of the physicians involved in making the determination and their relationship to the patient.[24] This requirement is not burdensome and is simply good medical practice.

Selection of Transplant Recipients

Where transplantation is performed as an urgent and hopefully lifesaving procedure, such as cardiac transplantation, selection of the recipient is made principally on medical grounds. The major considerations are the stage of the recipient's disease, his general physical condition, his age, and his immunologic similarity to the potential donor as revealed by tissue matching studies. Additional considerations may obtain where transplantation is done electively in a patient with chronic disease, such as chronic kidney disease. Here the situation may arise where at a given time there are more suitable potential recipients than available donors. Since kidney transplants are seldom done as emergency procedures, there is usually time for physicians to deliberate as to the choice of recipients. If one potential recipient is clearly better-suited for transplantation on the basis of tissue-matching studies or general physical condition, selecting him in preference to others seems entirely reasonable. But if no such difference exists between potential recipients, selection of one in preference to another may present ethical and perhaps legal problems.[24]

One solution to the problem of recipient selection might be for the attending physicians to delegate the choice to an independent group comprising clergymen, social workers and others. Such an approach has been used in choosing patients for long-term dialysis. One objection to this approach is that it encourages the selection body to discriminate among recipients on the basis of their presumed social worth, a process which could easily become prejudicial to the prospects of the poor, underprivileged, or unpopular.[25] A further objection is that it is overly time-consuming and expensive. Another approach is to apply the principle of first-come, first served.[26] Although ostensibly even-handed, this approach may conceivably result in preferring those who can afford to travel from one transplant center to another. A selection based solely on ability to pay does not seem legally objectionable. But it raises troublesome questions as to how far society may go in classifying medical care as a right instead of a privilege. Legislatures may differ in their willingness to appropriate funds to allow medical centers to provide transplants to those who need them without regard to ability to pay. If adequate funds are available, a fair way to choose among medically indistinguishable potential recipients where demand for organs exceeds supply is to select by lot. Lottery may seem a harsh way of implementing life and death decisions of this nature, but it has as a precedent the existing mode of selecting young men for military service.

Selection procedures based upon the principles of first come, first served ability to pay, or lottery seem safe from attack on grounds that they violate a potential recipient's constitutional rights. On the other hand, selection on the basis of social worth might be vulnerable as an unconstitutionally invidious discrimination.[25] For this reason and its potential for allowing unchecked expression of value judgments by the selectors, any mechanism which incorporates the social worth approach to selection seems objectionable. No matter how selection is made among potential recipients, it is well to recall the Physician's oath:

> ". . . I will not permit considerations of race, religion, nationality, party politics or social standing to intervene between my duty and my patient . . ."[27]

The physician may thus be reluctant to delegate a decision respecting his patient to a group which may weigh the very "considerations" that he may not.

Summary

This study reviewed rules of law and other factors which relate to the legal responsibilities of physicians who care for organ

transplant donors and recipients. These physicians are subject to the environmental demands of technical competence, medical ethics, and specific hospital and governmental regulations. The general rule that their patients give informed consent to a surgical procedure imposes upon these physicians a duty to explain the nature of a transplant operation and its reasonably predictable consequences, and affords donor and recipient a basis for decision-making. The Uniform Anatomical Gift Act provides simple, orderly procedures for achieving post-mortem gifts by donors of specific organs for transplant. The brain death concept does not appear to risk premature declarations of death of organ donors, but the courts have not as yet expressly sanctioned it. Coroners and medical examiners often must certify the cause and time of death of transplant donors, and physicians on the transplant team owe them close cooperation. Selection of transplant recipients may give rise to legal problems if the selection procedure discriminates among potential recipients on non-medical grounds. In general, the applicable law and developing standards of medical practice provide extensive safeguards to the rights of donors and recipients.

REFERENCES

1 Schneck, S. A., Penn, I.: Cerebral neoplasms associated with renal transplantation. Arch. Neurol., 22:226-233, 1970.
2 Medico-legal. Moment of death. Brit. Med. J., 5353:394, 1963.
3 Ethical guidelines for organ transplantation. JAMA 205:341-342, 1968.
4 Curran, W. J.: New public health service regulations on human experimentation. New Eng. J. Med., 281:781-782, 1969.
5 Wasmuth, C. E., Wasmuth, C. E., Jr.: Organ transplantation. In Law and the Surgical Team, Williams and Wilkins Co., Baltimore, 1969, pp. 319-361.
6 Sadler, A. M., Jr., et al: Transplantation—a case for consent. New Eng. J. Med., 280:862-867, 1969.
7 Sadler, A. M., Jr., Sadler, B. L.: The Uniform Anatomical Gift Act: a two year report. New Eng. J. Med., 283:156, 1970.
8 Sadler, A. M., Jr., Sadler, B. L., Stason, E. B.: Transplantation and law: progress toward uniformity. New Eng. J. Med., 282:717-723, 1970.
9 Curran, W. J., Beecher, H. K.: Experimentation in children. JAMA, 210:77-83, 1969.
10 Bonner vs. Moran, 126 F 2d 121 (DC Cir), 1941.
11 Masden vs. Harrison, No. 68651 Equity (Mass.), June 12, 1957.
12 Castel, J. G.: Legal aspects of organ transplantation in Canada. Canad. Med. Assn. J., 99:533-548, 604-618, 1968.
13 McCoid, A. H.: A reappraisal of liability for unauthorized medical treatment. Minn. Law Rev., 41:381-434, 1956.
14 State vs. Perricone, 37 N.J. 463, 181 A 2d 751, 1962.
15 Jehovah's Witness vs. King County Hosp., 278 Fed. Supp 488 (WD Wash., 1967)
16 Beecher, H. K.: After the definition of "irreversible coma". New Eng. J. Med. 281:1070-1071, 1969.
17 Moore, F. D.: Changing minds about brains. New Eng. J. Med., 282:47-48, 1970.
18 Halley, M. M., Harvey, W. F.: Medical vs. legal definitions of death. JAMA, 204:423-425, 1968.
19 Thomas vs. Anderson, 96 Cal. App. 2d 371, 215 P 2d 478, 1950.
20 In re Estate of Schmidt, 67 Cal. Rptr. 847, 1968.
21 A definition of irreversible coma. JAMA 205:337-340, 1968.
22 Wecht, C.: Attorney describes current efforts to establish uniform guidelines. Hospitals 43:54-57, 1969.
23 Silverman, D., et al: Irreversible coma associated with electrocerebral silence. Neurology 20:525-533, 1970.
24 Hauser, J. E.: The use of medical examiner-coroners' cases as transplant donors. J. Forensic Sci., 14:501-506, 1969.
25 Patient selection for artificial and transplanted organs. Harvard Law Review, 82:1322-1342, 1969.
26 Schupak, E., Sullivan, J. F., Lee, D. Y.: Chronic hemodialysis in "unselected" patients. Ann. Int. Med. 67:708-717, 1967.
27 World Medical Assn.: Declaration of Geneva. JAMA 138:435, 1948.

Colorado Members: Watch for It!

Later this month, all Colorado Medical Society Active Members will receive a "Special Colorado Centennial Edition" of our Journal, the first of two such special editions to be published this year in celebration of the Society's 100th anniversary.

It will have a distinctive art cover, so you will recognize right away that it is "something special," and we do believe it is. It is profusely illustrated, too. What sort of doctors founded this Colorado Medical Society on Sept. 19, 1871? What kind of physicians were the Society's first fifty Presidents? What type of medicine was practiced in Colorado during the gold rush days, and by the Indians who were already here? Your editors found this material fascinating, and we believe all of you will.

Sorry, but the Special Edition cannot be supplied to all members of the other five states participating in our regular Journal. The "Colorado Special" carries no advertising, and is being paid for by a special appropriation of Colorado Medical Society funds set aside from its member's dues, for the Society's Centennial activities during the last four years.

CALORIES / 7 oz. Serving*

Beef Broth	22	Vegetable	68
Consommé	29	Tomato	69
Chicken with Rice	43	Cream of Asparagus	70
Chicken Gumbo	48	Cream of Chicken	76
Chicken Noodle	54	Cream of Mushroom	115
Cream of Potato	58	Green Pea	116
Chicken Vegetable	60	Cream of Shrimp (Frozen)	132
Vegetable Beef	66	Bean with Bacon	133

In planning high or low calorie diets, Campbell's more than 50 different soups offer you a wide choice. And, most of Campbell's Soups contain a wide variety of ingredients that can serve as supplementary sources of many essential nutrients.

* From "Nutritive Composition of Campbell's Products" which gives values of important nutritive constituents of all Campbell's Products. For your copy, write to Campbell Soup Company, Dept.35, Camden, New Jersey 08101.

There's a soup for almost every patient and diet ...for every meal and, it's made by Campbell

THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

Becker-Shaffer's Diagnosis and Therapy of The Glaucomas: By Allan E. Kolker and John Hetherington, Jr. 3rd ed. St. Louis, 1970, Mosby. 495 p. Price: Review.

Best of Law and Medicine: By American Medical Association. Chicago, 1970, American Medical Association. 182 p. Price: $2.00.

Cancer of The Urinary Bladder: By William L. Caldwell. St. Louis, 1970, W. H. Green. 116 p. Price: $8.00.

Crisis of Psychoanalysis: By Erich Fromm. New York, 1970, Holt. 161 p. Price: $5.95.

Current Therapy: By Howard F. Conn. Philadelphia, 1971, Saunders. 836 p. Price: Not Set.

Depression: Its Diagnosis and Treatment: By Nathan S. Kline. New York, 1969, Brunner/Mazel. 92 p. Price: $6.00.

Divorce Won't Help: By Edmund Bergler. New York, 1970, Hart. 240 p. Price: $1.95.

Golden's Diagnostic Radiology-Mammography and Breast Diseases, v. 19: Edited by Laurence L. Robbins. Baltimore, 1970, Williams and Wilkins. 272 p. Price: $18.00.

History of The Otological Society, Inc. 1868-1968: By American Otological Society, Inc. Syracuse, N.Y., 1968, Otological Society. 147 p. Price: Gift.

Immunobiology for Surgeons: By J. Wesley Alexander and Robert A. Good. Philadelphia, 1970, Saunders. 220 p. Price: $12.00.

Love and Will: By Rollo May. New York, 1969, Morton, 252 p. Price: $7.95.

On Death and Dying: By Elisabeth Kubler-Rose. New York, 1969, Macmillan. 289 p. Price: $1.95.

Pediatric Urology: Edited by D. Innes Williams. New York, 1968, Appleton. 585 p. Price: $31.50.

Problems of Sex Behavior: Edited by Edward Sagarin and Donal Mac Namara. New York, 1968, Crowell, 288 p. Price: $2.95.

Psychoanalysis and Interpersonal Psychiatry: By Patrick Mullahy. New York, 1970, Science House. 751 p. Price: $15.00.

Psychology of Melancholy: By Mortimer Ostow. New York, 1970, Harper. 144 p. Price: $5.95.

Psychology of Suicide: By Edwin S. Shneidman and others. New York, 1970, Science House. 719 p. Price: $15.00.

Psychotic Conflict and Reality: By Edith Jacobson. New York, 1965, International Universities Press. 80 p. Price: $3.00.

Selective Bibliography of Orthopaedic Surgery: By American Academy of Orthopaedic Surgeons. 2nd ed. St. Louis, 1971, Mosby. 114 p. Price: $7.95.

Structure of Human Personality: By Hans Jurgen Eysenck. London, 1970, Methuen. 476 p. Price: $9.50.

Textbook of Medical Physiology: By Arthur G. Guyton. 4th ed. Philadelphia, 1971, Saunders. 1032 p. Price: $18.50.

Your Heart and How To Live With It: By Lawrence E. Lamb. New York, 1969, Viking. 247 p. Price: Not Set.

We'll send you cash instead of flowers

Flowers and candy are nice, but when you're disabled and can't work there's no substitute for cash — cash to help pay the bills until you're back on your feet again.

That's why your Colorado Medical Society offers you Disability Income Protection that can pay you up to $1,000.00 a month when you're sick or hurt and can't work.

You choose the protection that best suits your requirements from among 34 different plans — each one designed to fill a special need.

So now, while you're enjoying good health, protect yourself and your family with this primary protection from Mutual of Omaha. Get full details on this fine plan by completing and mailing the coupon below today.

Mutual of Omaha®
The Company that pays

Life Insurance Affiliate: United of Omaha
Mutual of Omaha Insurance Company
Home office: Omaha, Nebraska

Colorado Division Office
Mutual of Omaha
2nd Floor, Railway Exchange Bldg.
Denver, Colorado 80202

Please rush me full details on the Colorado Medical Society's Disability Income Protection Plan.

Address .....

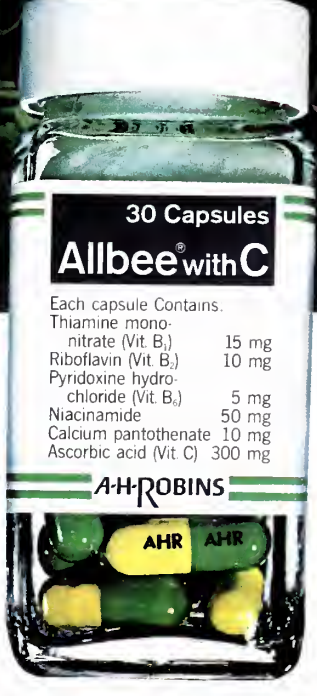
Name .....

City ..... State ..... Zip .....

4-7-10-71

2 ways to give your patients a month's therapeutic supply of Vitamin C:

40 pounds of spinach or 30 Allbee® with C



Although raw spinach is an excellent source of vitamin C, your patient would have to eat 40 pounds a month (about 1⅓ lbs. a day) to get as much ascorbic acid as is contained in just one bottle of 30 Allbee with C capsules (taken one capsule daily). If the spinach is cooked, a person would have to ingest more than twice as much because cooking destroys much of the vitamin C, and still more is lost when the liquid is drained off. Allbee with C also contains therapeutic amounts of B-complex vitamins. This handy bottle of 30 capsules gives your patient a month's supply at a very reasonable cost. Also the economy size of 100. Available at pharmacies on your prescription or recommendation.

A. H. Robins Company, Richmond, Va. 23220

A·H·ROBINS

vacation in
a vial:
the spasm
reactors
in your practice
deserve

"the Donnatal® Effect"

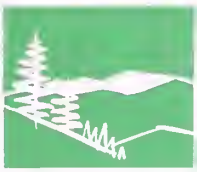
	each tablet, capsule or 5 cc. of elixir (23% alcohol)	each Donnatal No. 2	each Extentab®
hyoscyamine sulfate	0.1037 mg.	0.1037 mg.	0.3111 mg.
atropine sulfate	0.0194 mg.	0.0194 mg.	0.0582 mg.
hyoscine hydrobromide	0.0065 mg.	0.0065 mg.	0.0195 mg.
phenobarbital	(¼ gr.) 16.2 mg.	(½ gr.) 32.4 mg.	(¾ gr.) 48.6 mg.

(Warning: may be habit forming)

Brief Summary. Blurring of vision, dry mouth, difficult urination, and flushing or dryness of the skin may occur on higher dosage levels, rarely on usual dosage. Administer with caution to patients with incipient glaucoma or urinary bladder neck obstruction. Contraindicated in acute glaucoma, advanced renal or hepatic disease or a hypersensitivity to any of the ingredients.

A. H. ROBINS COMPANY, RICHMOND, VIRGINIA 23220

A·H·ROBINS



COLORADO

Boulder Doctor Helps Bring Hope to The West Indies

Joseph S. Cowgill, MD, a Boulder specialist in obstetrics and gynecology, has volunteered to serve a two-month tour of service aboard the hospital ship S. S. HOPE now in Kingston in the West Indies. The ship arrived in the port city in mid-January beginning its second decade of service.

Dr. Cowgill is a graduate of the University of Colorado where he also attended medical school. He is affiliated with Boulder Community Hospital. He also served with HOPE in Tunisia last year.

NEVADA

Physician Assistants Program

The Nevada State Legislature has authorized a study that may lead to training and licensing of "Physicians' Assistants" (P.A.) to help relieve the state's shortage of doctors, especially in rural areas.

Assembly Concurrent Resolution 31, a copy of which was given to Governor Mike O'Callaghan, invites the study of allied health training programs and related laws in the United States, and a recommended program for Nevada. The Resolution was delivered to Governor O'Callaghan by Elko County Assemblyman Norman A. Glaser (D-Halleck) who introduced the Resolution, and Nevada State Medical Association President V. E. Elliott, MD, a Fallon physician.

O'Callaghan, who had called during his campaign last year for the introduction of "MEDEX" or physicians' assistants in Nevada, encouraged and supported the Glaser Resolution.

It was adopted by the Assembly March 8, and by the Senate March 12, both by voice vote. It was returned to the Assembly and enrolled Tuesday, March 16.

The Nevada State Medical Association's Ad Hoc Committee on Physicians' Assistants Programs, which includes physicians and representatives of other health care professions and of the University of Nevada, also backed the Resolution. The Committee is coordinating efforts of the eight Nevada organizations invited by the Resolution to "review jointly the existing allied health personnel training programs in the United States and the laws pertaining thereto, and recommend a program to meet the needs of the State of Nevada, to be presented to the 57th (1973) session of the Legislature."

Units named in the Resolution are the Nevada State Medical Association, Board of Medical Examiners of the State of Nevada, Nevada Nurses' Association, Nevada State Board of Nursing, Nevada Hospital Association, Nevada Public Health Association, Health Sciences Council of the University of Nevada, Reno, and College of Allied Health Professions, University of Nevada, Las Vegas. (The Health Sciences Program, School of Medical Sciences, Orvis School of Nursing and other health education programs at UNR are represented by the UNR Health Sciences Council.)

Dr. Elliott said that pursuant to the Resolution, questionnaires have been prepared for Nevada physicians, nurses and hospital administrators as the first step in the study. The questionnaires ask respondents whether they favor employment of P.A.'s, what types of responsibilities the assistants should have on the health care team, and how the current practitioners would regard the newcomers.

The President of the State Medical Association also explained that a thorough study is necessary before a program can be put into action because the role and required training of P.A.'s have not been defined, and because laws governing their licensure, certification, registration and liability must be clarified.

There were no known P.A.'s in the United States five years ago, Elliott said, but now there are more than 500. And there are at least 400 more enrolled in educational programs for P.A.'s. Many are former military medical corpsmen. The Federal Civil Service Commission has established the job category of a "physicians' assistant" which means that this role will be filled in government hospitals and medical facilities.

UTAH

New IRMP Coordinator

Appointment of Robert M. Satovick, MD, as Intermountain Regional Medical Program (IRMP) Coordinator has been announced. Dr. Satovick succeeds C. Hilmon Castle, MD, who recently accepted the position of Professor and Head, Department of Community and Family Medicine, University of Utah College of Medicine. Dr. Satovick, an IRMP medical staff member, will retain his former responsibility as Executive Medical Director, IRMP Cerebrovascular Disease Project.

The IRMP is an organization designed to help speed the transmission of current medical knowledge and methods to the physicians, nurses, and other health personnel of the Region. Its primary effort has been in the area of providing additional education to health care workers who have already had formal training and experience. In addition to strengthening medical manpower, however, it also conducts experimental programs which test new ideas in how the accessibility, availability, and effectiveness of health and medical care might be improved still further. All IRMP activities are carried out in cooperation with existing health organizations and agencies. Its area of operation includes all of the state of Utah and parts of Colorado, Idaho, Montana, Nevada, and Wyoming.

Serving with the United States Navy from 1967 to 1969, Dr. Satovick presently holds the rank of Lt. Commander, Medical Corps, U. S. Naval Reserve. While on active duty, he was appointed Chief, Division of Neurology, U. S. Naval Hospital, Guam, Marianna Islands and Neurological Consultant, Guam Memorial Hospital and Brodie Memorial School, Marianna Islands and Trust Territory of the Pacific.

Prior to joining IRMP in 1970, Dr. Satovick was Assistant Professor of Neurology, University of Southern California School of Medicine, Los Angeles, California, and Chief Physician, Stroke Service, Rancho Los Amigos Hospital, Downey, California.

Two research fellowships were awarded Dr. Satovick by the University of Utah School of Medicine. His projects included the "Study of Rejection and Take of Isografts and Homografts in Mice," and the "Study of Human Peripheral Nerve Conduction Velocities Under Normal Conditions and Conditions of Increased Temperature," in 1960 and 1961 respectively.

DRUG ABUSE GUIDE REPRINTED

Success of a curriculum guide, *Teaching About Drugs,* has led to the printing of a larger second edition for the nation's schools.

The Pharmaceutical Manufacturers Association and the American School Health Association, who cooperated in producing the guide, have announced a second printing of 50,000 copies. The first printing of 25,000 copies has been exhausted.

"Teachers from kindergarten through high school have expressed enthusiasm for this new classroom teaching aid," PMA President C. Joseph Stetler noted. "Evidently it fills a paramount need for accurate information about modern medicines, illicit drugs and other substances subject to abuse."

The guide has been available nationally since the beginning of the 1970-71 school year and is in widespread use in scores of school systems across the country.

"Because we believe the guide will help the teacher to become a professional source of knowledge about a vital area of health education, we are placing a full-page ad describing it in the March 25 *Life* magazine as a public service," the PMA president said. "In addition, ads have also been placed in teacher magazines." He said similar ads will also run in professional publications in the health field, with space donated by various magazines.

Teaching About Drugs is available from the American School Health Association, 107 South Depeyster St., Kent, Ohio 44240. Single copies are four dollars and payment should accompany order.

ARTIFICIAL EYES

Plastic eyes and glass eyes specially made to fit the most difficult cases. An expert eye-maker is in our office at all times to give your patients the satisfaction they must have. In business since 1906.

Write or phone for full details.

DENVER OPTIC COMPANY

330 University Bldg. • 16th and Champa • 825-0229

Denver, Colorado 80202

PROJECT HOPE

S. S. HOPE

In mid-January, 1971, the hospital ship S.S. HOPE began her second decade of service when she arrived in Kingston to begin a ten-month teaching/treatment mission. The West Indies is the first phase of a three-year hemispheric program, with missions to follow to Brazil in 1972 and Venezuela in 1973.

The decision to send the hospital ship to the West Indies came in response to an invitation extended by the Ministry of Health through its Chief Medical Officer. In the West Indies the HOPE staff of doctors, nurses and other paramedical personnel will conduct medical teaching programs in classrooms, laboratories and wards aboard the hospital ship and ashore in cooperation with the Kingston Public Hospital, the University of the West Indies School of Medicine and other Ministry installations throughout the island republics. From mid-1970 HOPE medical survey and advance teams have been working in Jamaica to prepare for the ship's arrival.

Dr. William B. Walsh, the Project's founder and President, commenting on the West Indies mission, observed that HOPE "will help reach the people not only of Jamaica, but of the other island republics that have tended to feel that we in the United States have neglected them." HOPE surveys indicate that the health care system in the area is as needy as any HOPE has encountered in the world.

The West Indies mission is the ninth for the S.S. HOPE since 1960. Other missions visited Indonesia, South Vietnam, Peru, Ecuador, Guinea, Nicaragua, Colombia, Ceylon and most recently Tunisia. Land-based programs continue in six of these nations. HOPE also has two domestic programs working in the United States in the Mexican-American community of Laredo, Texas, and on the 16-million acre Navajo Indian reservation at Gando, Arizona, helping local people achieve solutions to their own health problems.

Project HOPE, which sponsors these programs, is the principal activity of The People-to-People Health Foundation, Inc., an independent, non-profit international health organization, headquartered in Washington, D.C., and supported by donations from the American people.

PICKER Medical Products

3890 ELM STREET — TEL. 388-5731 — DENVER, COLORADO 80207

Offices also in:
Colorado Springs, Colorado
2236 Glenwood Circle, 635-8768

Salt Lake City, Utah
21 Kensington Street, 487-7519

Albuquerque, New Mexico
113 Sierra Dr., S.E., 255-1288

Medical X-Ray Equipment

Accessories & Film

Nuclear Equipment

When prescribed—Bennett's AP series makes air IPPB therapy simple and efficient!

They're easy to use. Simple, non-interacting controls make the AP ideal for patient use at home. They're also widely used in doctors' offices, clinics and in hospitals.

Bennett's AP units are therapeutically efficient. The famous, flow-sensitive Bennett Valve—the valve that "breathes" with the patient—gives proper control of pressure patterns. The Bennett/Twin Nebulizer (included with all AP Models) provides optimum volume and particle size for medication and humidification. Oxygen enrichment may be added with other Bennett accessories.

Bennett makes two AP models—the reliable AP-5, as shown, and its *self-contained portable* teammate, the AP-4 (inset). Both are electrically operated, quiet, compact and quality built.

Get full information on the Bennett AP Series from your Puritan representative. He'll also tell you about patient rental plans.

Bennett IPPB equipment is sold or rented only on prescription by a physician or on order of a hospital or other recognized medical institution.

GEO. BERBERT & SONS, INC.

1717 LOGAN STREET, DENVER, COLORADO 80203 • TEL. 255-0408

1903-1971 — OUR 68th ANNIVERSARY

Hurricane Camille dumped up to 31 inches of rain on Virginia's Blue Ridge Mountains the night of August 19-20, 1969. She had already devastated the Gulf Coast from Louisiana to Florida, halted her northward journey over Kentucky and Tennessee, then headed eastward over West Virginia and Virginia.

Cooperative Farmer

Emotional stress can be just as destructive to the individual as turbulent, ravaging flood waters are to land and property. Solfoton will contribute to the maintenance of a mental climate for purposeful living.

Solfoton®

SEDATION WITHOUT DEPRESSION

EACH TABLET OR CAPSULE CONTAINS:

Phenobarbital.....16 mg.
(Warning: may be habit-forming)

Bensulfoid (See PDR).....65 mg.

Precaution: same as 16 mg. phenobarbital

DOSAGE: One tablet or capsule every 6 hours will sustain mild sedation.

Available in three forms to satisfy prescribing circumstances:

TABLETS	100s	500s	5000s
CAPSULES	100s	500s	1000s
TABLETS S/C	100s	500s	4000s

Federal law prohibits dispensing without prescription

WILLIAM P. POYTHRESS & COMPANY, INC.
RICHMOND, VIRGINIA 23261

Manufacturers of Ethical Pharmaceuticals Since 1856

Wouldn't it be great if someone specialized in doctors' tax work?

Someone does.

We've got twelve years experience in the doctor's tax business. This specialization saves our doctors taxes.
It makes sense.

We've learned just how to nail down those often-missed deductible professional expenses. We've learned how doctors can save money by income-averaging, by bunching income, by planning insurance coverages, and sometimes by incorporating.

Maybe most important of all is the way we keep our doctors informed, month-by-month, of just what their tax obligations are. Our doctors don't have any "April Surprises."

Our Firm is nationwide, but our home is in the Rocky Mountains — in Denver. There's a PMS Consultant in your area. If you want specialized and better tax service, give him a call:

Albuquerque, New Mexico	Herb Hughes	(505) 298-5809
Albuquerque, New Mexico	Joe Listek	(505) 298-5809
Billings, Montana	Harry Miller	(406) 248-6203
Boulder, Colorado	George Hunt	(303) 444-3149
Colorado Springs, Colorado	George Schrameyer	(303) 598-2042
Denver, Colorado	Dick McMullen	(303) 986-2394
Denver, Colorado	Jim Meador	(303) 623-7165
Denver, Colorado	Ed Rorden	(303) 623-7165
Salt Lake City, Utah	Doyle Allen	(801) 394-5828
Santa Fe, New Mexico	Dan Hughes	(505) 983-1314

Or clip the coupon below and mail it to our home office in Denver.

PRACTICE MANAGEMENT SERVICES

601 BROADWAY, DENVER, COLORADO 80203

I'm interested in better tax service.
Have your consultant stop by to see me.

Name_____

Address_____

Telephone_____

City_____ State_____

Zip_____

We go to great lengths to serve you

Over 12,359 miles of electric lines and 7941 miles of natural gas lines bring you dependable service 24 hours a day, 365 days a year.

Public Service Company of Colorado

Taste!

Dicarbosil®
ANTACID

Your ulcer patients and others will confirm it. Specify DICARBOSIL 144's—144 tablets in 12 rolls.

ARCH LABORATORIES
319 South Fourth Street, St. Louis, Missouri 63102

THE EMORY JOHN BRADY HOSPITAL

401 Southgate Road COLORADO SPRINGS, COLORADO 80906 MElrose 4-8828

E. JAMES BRADY, M.D., *Medical Director*

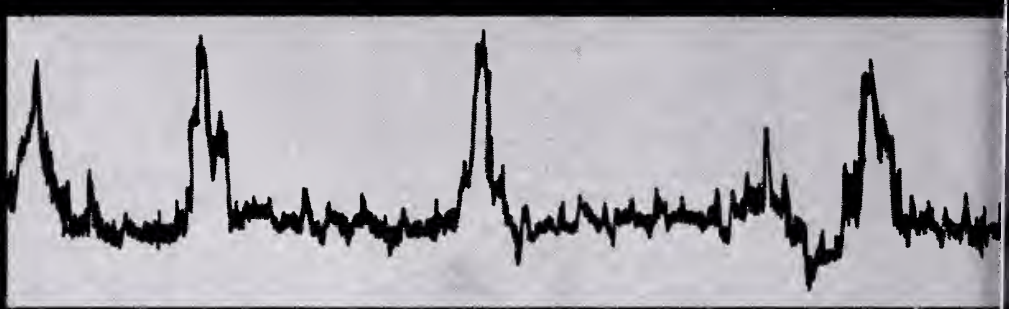
CAMPBELL F. RICE, *Superintendent*

Francis A. O'Donnell, M.D.
Robert W. Davis, M.D.
Richard L. Conde, M.D.
Paul A. Draper, M.D.
Charles W. McClellan, M.D.
James E. Edwards, M.D.

For the care and treatment of Psychiatric disorders.
Individual and Group Psychotherapy and Somatic Therapies.
Occupational, diversional and outdoor activities.
X-ray, Clinical Laboratory and Electroencephalography.

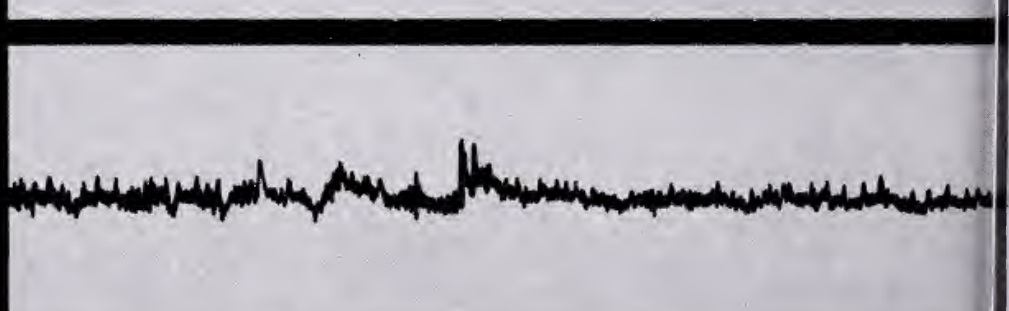
An intestinal autobiography of rage, contentment and horror*

"Feeling unfairly taxed by the government (Internal Revenue Service) and not given enough attention by A.U.O. [an experimenter to whom the subject became very attached], he became overtly critical and accusatory. He shouted, raged, and threatened to quit."*



"The motility that day was quiet. This type of recording is seen regularly when he is relaxed and contented and the laboratory seems peaceful."*

He was overwhelmed by "paralyzing horror" when told he would need a partial laryngectomy for removal of an early carcinoma; "...the activity of the ileum virtually ceased for over a five-minute period...."*



Background

*Data presented here derive from a 13-year ongoing study by Henry Harrison Sadler, M.D., and Aline Underhill Orten, Ph.D., at Wayne State University. Their findings, which demonstrate a correlation between the emotional state of a human subject and the motility of an isolated segment of his ileum, were published in the April, 1968, *American Journal of Psychiatry*, volume 124, page 1375.

The subject is a 56-year-old man with a 40-c Thiry loop of ileum created as a result of emergency surgery. A person of modest attainment and simple tastes, the subject depends on the investigators as he might hi own family. His full-time job is as a "human laboratory," and throughout the 13-year per of the study, he has taken great personal pr in his own participation.

A story charged with emotion

The graphs on the facing page are intestinal motility readings on a human subject experiencing the emotions of rage, contentment and horror (see "Background" below left). This "intestinal autobiography" dramatizes the point that certain emotions correlate with specific patterns of G.I. motility.

The visceral clutch and functional G.I. disorders

The gut response to stress has been amply demonstrated in many functional G.I. disorders. Nervous diarrhea and irritable colon syndrome, for example, are disorders associated with abnormal G.I. motility. And these disorders are commonest among patients sensitive to life-stress situations productive of conflict and excessive anxiety.

Librax® calms anxiety, calms the gut

In these areas of G.I. pathology, Librax has become a mainstay of adjunctive therapy. Reason? Effective two-way calming action. Librax, by relieving excessive anxiety, not only helps calm emotional overreaction to stress, it controls intestinal hypermotility, too. Depend on Librax—the only drug that combines the well-known antianxiety action of Librium® (chlordiazepoxide HCl) and the potent, dependable antisecretory/antispasmodic action of Quarzan® (clidinium Br).

1 or 2 capsules, 3 or 4 times daily in the treatment of nervous diarrhea and irritable colon syndrome

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances, syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

In functional G.I. disorders, adjunctive Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

calms anxiety, calms the G.I. tract

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

MEDICAL SCHOOL NOTES

University of Colorado Medical Center

Can medical students, using modern audio-visual techniques and peer-group challenges teach each other anatomy? The Department of Anatomy of the University of Colorado School of Medicine thinks that it is a distinct probability they can, and the National Institutes of Health has awarded the department a $94,061 contract to test the proposition in a unique experiment in medical education.

Learning human anatomy traditionally has required major blocks of time during the early years of medical education, the student spending long hours dissecting a cadaver. This may be changed by the portable television camera, video and audio tapes, color slides, and the opportunity of teaching others what one has learned.

Using these tools, 35 CU medical students currently are enrolled by their own choice in a first-of-its-kind course in human anatomy. Meanwhile, 85 fellow students, also at their own election, are enrolled in a conventional anatomy course.

The students in each group will undergo six different standard examinations, four national psychological tests and two locally constructed exams. To measure their relative progress, both groups took the same pre-test in anatomical knowledge, both are being examined periodically, and both will be administered identical post-tests.

In preparation for the experimental course, students who elected to participate in it were given special instruction in audio-visual technology—use of closed-circuit television, preparation of video tapes, still photography, etc.—by the staff of the Office of Educational Resources, the Medical Center's audio-visual facility, under the direction of Dr. William G. Cooper, who is himself a professional anatomist. Students in the experimental course spend about 135 classroom hours learning anatomy, compared with 210 hours for the conventional course.

Preliminary experience with the new program indicates that in addition to providing advantages in undergraduate anatomical training, it may also prove to be a new and better method of training advanced students, interns, residents and practicing physicians in anatomy or in other basic biomedical sciences. The special course is attracting considerable interest outside the anatomy department, and faculty members from the clinical disciplines of otolaryngology, orthopedic surgery and neurosurgery have been involved in the program.

Because of its implications for improved health manpower training, the CU course is being supported by the contract with the Division of Physician and Health Professions Education of NIH.

The CU course already is receiving in-group attention from the men who supervise the teaching of anatomy in American medical schools. A proposal for further expansion of the program is currently under review by the Association of Anatomy Chairmen.

* * * * *

The University of Colorado Department of Molecular, Cellular and Developmental Biology at Boulder will help researchers focus on one of man's most formidable problems—cancer—during a four-week course and three-day conference next summer.

Leading cancer researchers from throughout the nation and Europe will be featured during the course June 21-July 16 and the conference July 14-16. Both are supported by funds from the National Cancer Institute.

The summer program is designed to focus the results of current research on the cancer problem and to engage the interest of young researchers in this field.

Fifty advance graduate students, postdoctoral fellows and established researchers, who are seriously considering a career in cancer research, will be selected to participate in the course, which carries three semester hours of CU graduate credit. The intensive program includes several daily lectures and several hours of discussion which will give the students the informational foundation necessary to conduct productive research in the field.

Eighteen distinguished American and European scientists will present papers on the several approaches to the study of cancer. Topics will include the comparative biochemistry of cancer and normal cells, the relation of cancer to embryological development, surface properties of cancer cells, the fusion of normal and cancer cells, and the role of viruses in cancer.

The conference will coincide with the dedication of CU's new modern biology building, a $3.7 million structure nearing completion.

Further details on the course and conference are available from The Biology of Cancer Cells, Department of Molecular, Cellular and Developmental Biology, 126 Biosciences, University of Colorado, Boulder 80302.

University of Utah Medical Center

A Symposium on Respiratory Diseases in Children and Young Adults was held March 10 through 12 in the Golden Eagle Room of the TraveLodge in Salt Lake City. The three-day course was designed to acquaint physicians with recent advances in the diagnosis and treatment of diseases such as asthma, tuberculosis, and cystic firbrosis—diseases that are a leading cause of death in children. Discussions focused on physiology, clinical problems, application of diagnostic methods and tools, and delivery of health care and demonstrations were conducted in respiratory techniques and equipment.

In addition to an outstanding local faculty, the symposium's staff included several visiting professors. They are Dr. Carl F. Doershuk, Associate Professor of Pediatrics, Cast Western Reserve University School of Medicine, Cleveland, Ohio; Dr. Roy F. Goddard, Medical Director of the Pediatric Pulmonary Center of the New Mexico Regional Medical Program, Medical Director of the New Mexico Cystic Fibrosis Center, and Director of Pediatric Research at the Lovelace Foundation, Albuquerque, New Mexico; Dr. Douglas C. Heiner, Professor of Pediatrics and Chief of the Division of Immunology and Allergy, Department of Pediatrics, UCLA Harbor General Hospital, Torrance, California; Dr. Edwin L. Kendig, Jr., Professor of Pediatrics and Director of the Child Chest Clinic, Medical Sciences Division, Virginia Commonwealth University, Richmond, Virginia; Dr. William W. Waring, Professor of Pulmonary Disease, Department of Pediatrics, Tulane University School of Medicine, New Orleans, Louisiana; and Dr. John P. Wyatt, Professor of Pathology, University of Manitoba, Winnipeg, Canada.

The symposium was sponsored by the Department of Pediatrics, University of Utah College of Medicine; the Postgraduate Medical Education Section of the Department of Community and Family Medicine, University of Utah College of Medicine; the Respiratory Disease Project, Intermountain Regional Medical Program; the National Cystic Fibrosis Research Foundation; and the American Contract Bridge League Charity Foundation.

University of Nevada School of Medical Sciences

A $10,000 research grant has been given to the School of Medical Sciences at the University of Nevada, Reno, by the Fraternal Order of Eagles. Robert J. Welty of Reno, Nevada state president of the Eagles, announced the grant by the Eagles Max Baer Heart Fund.

Dr. Richard H. Licata, director of medical curriculum and research for the Nevada medical school, said the money will be used for heart research, in the development of a new design for an artificial pace-making system.

Welty said the fund has contributed some $5 million to heart research since it was established 10 years ago. The $10,000 grant to the UNR School of Medical Science is the first Max Baer Heart Fund Grant in Nevada, Welty said.

* * * * *

"Vulnerability of premature beats to A.C. stimuli of long duration" is the title of a paper by Emile C. Van Remoortere, MD, professor of physiology at the School of Medical Sciences, University of Nevada, Reno, which is currently being published by Acta Cardiologica, journal of the Belgian Society of Cardiology.

The sensitivity (propensity) to ventricular fibrillation was tested in animal experiments by applying A. C. stimuli of variable duration directly to the heart. This method of measuring fibrillation thresholds was used to test premature beats evoked by different types of electrical stimulation. This study is an experimental contribution to the problem of the relationship between ventricular premature beats and the development of ventricular fibrillation.

Dr. Van Remoortere came from Belgium last year to join the faculty of the new two-year School of Medical Sciences in Reno. He was, at the time, head of the Department of Cardiovascular Pharmacology, Union Chimique Belge (UCB, Pharmaceutical Division), Brussels. He is a graduate in medicine and former medical faculty member of the State University of Liege, Belgium, and was formerly dean of the Medical School, State University of the Congo.

University of New Mexico School of Medicine

Recent drug-related deaths in New Mexico have pointed out the need for greater education and action in the area of drug abuse—a need which has been dramatically recognized by the University of New Mexico. Interest is so keen on campus that when a new course was offered this semester on psychotropic (mind-affecting) drugs, 576 students signed up—and there's a long waiting list.

The class was fashioned by faculty members from the psychology department in the College of Arts and Sciences, and the pharmacology department in the School of Medicine because "too much misinformation is being circulated about the misuse of drugs."

During the past year, UNM faculty members have donated thousands of hours speaking to a wide variety of audiences, including thousands of teenagers, officers' wives, service club members, ministers, parents and other concerned citizens. Appearances have been throughout the state.

Dr. Mike Hickey at the UNM Student Health Center said there has been a marked increase in the number of drug-related problems handled at the center, possibly because of the cooperation

from two campus student groups, Agora and Mash. During the past four months, the Student Health Center has seen over 100 students with drug-related problems and spent about 60 hours speaking to interested groups on facts, myths and feelings about drug use, Dr. Hickey said.

Three research projects are underway in the Department of Pharmacology. Dr. Lloyd Beck, chairman, is studying the autonomic nervous system; Dr. Tom Burks is working on indirect actions of narcotic analgesics; and Dr. Eugene Palmer is researching biochemical aspects of psychotropic drugs on the central nervous system. Other UNM personnel have voluntarily worked numerous hours with the Drug Abuse Education Center financed by UCF and local agencies.

Another new UNM course for education majors called "Pharmacy 482-Drug Education" is being offered. It covers the basic principles of pharmacology, drug action, drug use and misuse, including over-the-counter drugs and prescriptions.

Dr. Ferraro currently is working with a $100,000 grant from the U.S. Justice Department's Bureau of Narcotics and Dangerous Drugs, to study the long-term use of marijuana's effect on behavior. Another of his research projects is on amphetamine dependency.

From research to prevention to treatment—the University of New Mexico is in the forefront of activities to help combat the rising drug problem in the state.

who goes for checkups?

In a recent survey, 90% of patients said they would have annual checkups *if their physicians told them to do so.* This confirmed what we have long known—your key role, doctor, in motivating your patients to follow good health practices. We alert the public with facts about cancer. You follow through by urging regular checkups. A life-saving combination.

American Cancer Society
Colorado Division, Inc.
1764 Gilpin St. Denver, Colo. 80218

of the tetracycline-nystatin products

...none is lower priced

Lederle LEDERLE LABORATORIES, A Division of American Cyanamid Company, Pearl River, New York 10965

OBITUARIES

Utah

E. B. Fairbanks, MD, retired Salt Lake ophthalmologist and ENT specialist, died March 4, 1971, at the age of 78.

The son of Franklin and Lois Arminnie Tanner Fairbanks, Doctor Fairbanks was born May 18, 1892, in Payson, Utah. He married Vera Anna Larson in September 1919.

A graduate of the University of Utah, Doctor Fairbanks received his medical degree in 1918 from the Jefferson Medical College, Philadelphia. He served his internship at the Philadelphia General Hospital, and a residency at the Wills Eye Hospital, also in Philadelphia. He practiced in Beaver from 1919 to 1922, and from 1932 until his retirement had practiced in Salt Lake City with a son, Bryce. Doctor Fairbanks was a former staff member of the Primary Children's Hospital and the Salt Lake County General Hospital and was recently honored by the L.D.S. Hospital for being their oldest medical staff member.

Affiliated with the Salt Lake County, Utah State, and American Medical Associations, Doctor Fairbanks also held membership in the American Ophthalmological Society and the American Laryngology, Rhinology, and Otology Society. An active civic worker, he was a member of the Ambassador Club, the Country Club, and the Bonneville Knife and Fork Club. He was also a former member of the Lions and Kiwanis Clubs.

Surviving the doctor are his widow; three sons, Dr. Robert Larson, Dr. Bryce Jay, and Dr. Richard Frank, all of Salt Lake City; 16 grandchildren; a brother, Lynn Reed; and two sisters, Mrs Clark (Lois) Gardner, and Mrs. Grant (Thera) Teasdale.

Colorado

Kenneth Adolph Jankovsky, MD, Denver physician and surgeon, died March 2 of a heart attack in his office in Denver.

He was born January 8, 1920 in Sedgwick, Colorado, attended Colorado schools and was graduated from the Univ. of Colo. and C.U. School of Med. He was married to Mary Katherine Axness in 1948.

Doctor Jankovsky served as Captain in the Medical Corps during World War II. He was a member of Phi Beta Kappa, scholastic Honorary; Phi Rho Sigma and Alpha Omega Alpha Med. Honoraries; the Colorado Medical Society and the Denver Academy of Surgery.

He is survived by his widow; two daughters, Mrs. Katherine Ann Livingston and Miss Janet Lisa Jankovsky, both of Denver; five sons, John J., Boulder; Michael J., Charles K., George C. and Frank H., all of Denver; his parents, Mr. and Mrs. James V. Jankovsky, Sedgwick; two sisters, Mrs. Genevieve Myers, Pueblo, Colo., and Mrs. Warren Skinner, Joliet, Ill.; two brothers, Woodrow F., Julesburg, Colorado and James, Rock River, Wyoming.

Ralph M. Stuck, MD, died March 6 at Presbyterian Hospital in Denver. Doctor Stuck was born June 20, 1906 in Jonesboro, Arkansas, and was a graduate of the Washington University Medical School in St. Louis, receiving his M.D. degree in 1932. He married the former Betty Michael in 1936 in Illinois.

Doctor Stuck was a practicing neurosurgeon in the Denver area since 1937. He served with the rank of Lt. Col. in the Medical Corps, U.S. Army, during WW II, and was awarded the Bronze Star by the Army. He was a member of Denver Medical Society, Colorado Medical Society, the American Medical Association and the Pan Pacific Surgical Association.

He is survived by his widow; two daughters, Miss Virginia Lee Stuck of Wheat Ridge, and Lt. (j. g.) Mary Margaret Stuck of Lemoore Naval Air Station, California; and four brothers, Charles Stuck of Little Rock, Ark., William Stuck of Jonesboro; Goodloe Stuck of Shreveport, Louisiana and Dr. Paul Stuck of Fairbanks, Alaska.

PUBLICATION PRINTING . . .

NEWSPAPERS • MAGAZINES
ANNUALS • QUARTERLIES
BOOKLETS • BROCHURES
REPORTS • ROSTERS • PROGRAMS
HANDBOOKS • CATALOGUES

EDITORIAL ASSISTANCE • BINDING
ART DEPARTMENT • MAILING

Publishers Press, Inc.
/Monitor Publications

2177 W. 7th DENVER 892-0166

MEETINGS

University of Colorado School of Medicine Postgraduate Medical Education

RESPIRATORY INSUFFICIENCY
Denver, Colorado
April 21-23, 1971

CLINICAL DERMATOLOGY
Denver, Colorado
April 29-May 1, 1971

GENERAL PRACTICE REVIEW
YMCA Conference Center, Estes Park, Colorado
June 21-26, 1971

PEDIATRICS
Aspen, Colorado
July 11-14, 1971

INTERNAL MEDICINE
YMCA Conference Center, Estes Park, Colorado
July 20-24, 1971

RECENT ADVANCES IN RHEUMATIC DISEASES
Estes Park, Colorado
July 26-29, 1971

For detailed programs and further information, write to: The Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado 80220.

The Children's Hospital—Denver

PEDIATRIC ORTHOPEDICS
April 14, 1971

A workshop in orthopedics will be held in Tammen Hall Auditorium from 9:00 a.m. to 4:00 p.m. on Wednesday, April 14, 1971. Guest Professor is Sherman Coleman, M.D., Chief of Orthopedics, University of Utah Medical Center.

Fee—$20.00.

PEDIATRIC OTOLARYNGOLOGY
May 14, 1971

Guest professor is Sylvan Stool, MD, Chief of Pediatrics Otolaryngology, Philadelphia Children's Hospital.

Write Department of Continuing Education, The Children's Hospital, Denver, Colorado 80218.

University of Utah College of Medicine Division of Postgraduate Medical Education

SECOND ANNUAL VENEREAL DISEASE CONFERENCE

Sponsored by Division of Infectious Diseases, Department of Community and Family Medicine.
University of Utah Medical Center, Salt Lake City, Utah
April 21, 1971

Fee: $5.00. Credit (AAGP): 7 hours.

15th ANNUAL TABOROFF MEMORIAL LECTURE

Sponsored by Division of Child and Adolescent Psychiatry, Postgraduate Medical Education Section, Dept. of Community and Family Medicine.
Art and Architecture Center, Fine Arts Building, University of Utah
April 28, 1971

Fee: None. Credit (AAGP): None.

RECENT ADVANCES IN CHILD PSYCHIATRY

Sponsored by Division of Child and Adolescent Psychiatry, Postgraduate Medical Education Section, Dept. of Community and Family Medicine.
University of Utah Medical Center Complex
April 29-30, 1971

Fee: $30.00. Credit (AAGP)

University of Oregon Medical School Continuing Education Courses for Physicians

CHRONIC RENAL DISEASE
St. Vincent's Hospital, Billings, Montana
May 25, 1971
Deaconess Hospital, Great Falls, Montana
May 26, 1971
St. Patrick Hospital, Missoula, Montana
May 27, 1971

These Circuit Course programs, sponsored by the University of Oregon Medical School and funded by the Oregon Regional Medical Program, are held on each of the above dates from 1:30 to 6:00 p.m.

There is no registration fee. AAGP Credit—4½ hours.

Information and application requests to Director, Circuit Course Program, University of Oregon Medical School, 3181 SW Sam Jackson Park Road, Portland, Oregon 97201.

American Gastroenterological Association

CHRONIC INFLAMMATORY DISEASE OF THE GUT
Aspen, Colorado
July 29-31, 1971

For information write to Mrs. Bernie C. Kern, 740 Krameria Street, Denver, Colorado 80220.

Montana Heart Association

14th ANNUAL POSTGRADUATE CONFERENCE FOR PHYSICIANS

Florence Hotel, Missoula, Montana

May 7-8, 1971

For further information, contact Judith Graham, MD, 1220 Central Avenue, Great Falls, Montana 59401.

MONTANA ACADEMY OF GENERAL PRACTICE

Stagecoach Inn, West Yellowstone, Montana

June 17-19, 1971

Information can be obtained from Edward L. King, MD, 1971 Program Chairman, P.O. Box 405, Manhattan, Montana 59741.

American Academy of General Practice

14th ANNUAL RUIDOSO SUMMER CLINIC
Chaparral Motel, Ruidoso, New Mexico

July 19-22, 1971

Contact Mr. Bob Reid, Executive Secretary, P.O. Box 456, Sunland Park, New Mexico 88063 for further information concerning this meeting.

Third Annual Cerebral Function Symposium

HEMISPHERECTOMY AND CEREBRAL FUNCTION

Del Coronado Hotel, Coronado, California

June 16-19, 1971

Further information concerning this meeting may be obtained by contacting Dr. Lynn Smith, Chairman, Porter Memorial Hospital, 2525 S. Downing, Denver, Colorado 80210.

American Electroencephalographic Society

CLINICAL ELECTROENCEPHALOGRAPHY

Minneapolis, Minnesota

September 13-15, 1971

The course is designed to review the principal applications of the EEG to clinical medical practice.

Inquiries about further details of the course or registration procedures should be addressed to Dr. Donald W. Klass, EEG Course Director, Mayo Clinic, Rochester, Minnesota 55901.

Fiftieth Meeting, Southwestern Medical Association

Hilton Inn, El Paso, Texas

November 11-13, 1971

This meeting will be held in conjunction with the Interim Meeting of the New Mexico Medical Society and the Annual Meeting of District 1 of the Texas Medical Association. President is Dr. Zigmund M. Kosicki, 109 Cienega, Santa Fe, New Mexico 87501 and General Chairman is Dr. William G. McGee, 415 E. Yandell, El Paso, Texas 79902.

8th ANNUAL ROCKY MOUNTAIN BIOENGINEERING SYMPOSIUM

Colorado State University, Ft. Collins, Colorado

May 3-5, 1971

This meeting covers all areas of Engineering in the Medical and Biological sciences. Registration is $20.00, $1.00 for students. To pre-register or obtain further information, contact: Rocky Mountain Bioengineering Symposium, Inc., P.O. Box 59, USAF Academy, Colorado Springs, Colorado 80240.

SCIENTIFIC COMMUNICATION

University of California's Residential Conference Center, Lake Arrowhead, California

July 16-17, 1971

Further information is available by writing Continuing Education in Medicine and Health Sciences, Rehabilitation Center, West Medical Campus, University of California, Los Angeles, California 90024, or telephone Mrs. Elizabeth Gifford at (213) 825-7186.

ADVANCED SEMINAR IN UROLOGY

University of California Residential Conference Center, Lake Arrowhead, California

August 11-15, 1971

Although planned primarily for the urologist, this Seminar covers subjects of interest to the medical-renal specialist as well. Recent advances in the clinical and practical aspects of urology will be stressed. Lectures and panels will provide the basis for seminar discussion. At pyelogram conferences, enrollees will present interesting cases they will bring for this purpose.

For further information, write Donald Brayton, MD, associate dean, postgraduate medical education, Rehabilitation Center, West Medical Campus, University of California, Los Angeles, California 90024, or telephone Miss Kathleen Blake at (213) 825-7257.

Newton Optical Company

Catering to Medical Profession Patronage

309 16th Street
Denver 80202

GUILD OPTICIANS

Telephone
534-8714

THE MUSCLE RELAXANT THAT DOES WHAT'S EXPECTED

AND LESS

Some skeletal muscle relaxants cause generalized muscle weakness. Not Norflex. Some require dosages as high as eight tablets a day for effective relief. Norflex relaxes only the muscles in spasm on one tablet b.i.d. Norflex checks pain. Reduces rigidity. Restores mobility. Has less side effects too. So Norflex does what's expected. And does it with less inconvenience.

Norflex®
(ORPHENADRINE CITRATE)

1 TABLET (100 mg.) B.I.D.

Indications: Acute spasm of voluntary muscles, regardless of location; especially post-traumatic, discogenic, and tension spasms.
Dosage: Two tablets per day for adults, regardless of weight or sex; one in the morning and one in the evening.
Contraindications: Contraindications for Norflex are due to the anticholinergic action of orphenadrine. Norflex should not be used in patients with glaucoma, pyloric or duodenal obstruction, stenosing peptic ulcers, prostatic hypertrophy or obstruction at the bladder neck, cardiospasm (megaesophagus) and myasthenia gravis. It should be used with caution in patients with tachycardia.
Since mental confusion, anxiety and tremors have been reported in patients receiving orphenadrine and propoxyphene concurrently, it is recommended that Norflex not be given in combination with propoxyphene (Darvon®).
Side Effects: Side effects of Norflex (orphenadrine citrate) are mainly due to the mild anticholinergic action of orphenadrine, and are usually associated with higher dosage. Dryness of the mouth is the first side effect to appear. When the daily dose is increased, possible side actions include: tachycardia, palpitation, urinary hesitancy or retention, blurred vision, dilatation of the pupil, increased ocular tension, weakness, nausea, vomiting, headache, dizziness, constipation, drowsiness and, rarely, urticaria and other dermatoses. Infrequently, an elderly patient may experience some degree of mental confusion. These mild side effects can usually be eliminated by reduction in dosage. Two cases of aplastic anemia associated with the use of Norflex tablets have been reported. No causal relationship has been established.
For full information, see Package Insert or P.D.R.

Riker Laboratories, Inc. SUBSIDIARY OF 3M COMPANY
NORTHRIDGE, CALIFORNIA 91324
Sponsor of Riker-Service—The Complimentary Classified Service for Physiciens

The girth control pill

Tepanil® Ten-tab®

(continuous release form)

(diethylpropion hydrochloride, N.F.)

works on the appetite not on the 'nerves'

When girth gets out of control, TEPANIL can provide sound support for the weight control program you recommend. TEPANIL reduces the appetite—patients enjoy food but eat less. Weight loss is significant—gradual—yet there is a relatively low incidence of CNS stimulation.

Controindicotions: Concurrently with MAO inhibitors, in patients hypersensitive to this drug; in emotionally unstable patients susceptible to drug abuse.

Worning: Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

Adverse Reoctions: Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence. As is characteristic of sympathomimetic agents, it may occasionally cause CNS effects such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression hos been reported. In a few epileptics an increase in convulsive episodes has been reported. Sympothomimetic cardiovascular effects reported include ones such as tachycardio, precordial poin, arrhythmia, palpitation, ond increased blood pressure. One published report described T-wove chonges in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this wos an isolated experience, which hos not been reported by others. Allergic phenomena reported include such conditions as rash, urticaria, ecchymosis, and erythema. Gastrointestinal effects such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosoge forms: TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL: One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

T-103 / 2/71 / U.S. PATENT NO. 3,001,910

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Painful night leg cramps...

unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

One thing patients can sleep without, particularly patients with chronic disease conditions such as arthritis, diabetes or PVD, is painful night leg cramps. Although seldom the presenting complaint, night leg cramps can tie your patients up in painful knots. Now, just one tablet of QUINAMM at bedtime can usually bring an end to shattered sleep and needless suffering. Your patients will sleep restfully—gratefully—with QUINAMM, specific therapy to prevent painful night leg cramps.

Prescribing Information—Composition: Each white, beveled, compressed tablet contains: Quinine sulfate, 260 mg., Aminophylline, 195 mg. **Indications:** For the preventian and treatment of nocturnal and recumbency leg muscle cramps, including those associated with arthritis, diabetes, varicose veins, thrambophlebitis, arteriosclerosis and static foot deformities. **Contraindications:** QUINAMM is contraindicated in pregnancy because of its quinine content. **Precautions/Adverse Reactions:** Aminophylline may produce intestinal cramps in some instances, and quinine may produce symptoms of cinchonism, such as tinnitus, dizziness, and gastrointestinal disturbance. Discontinue use if ringing in the ears, deafness, skin rash, or visual disturbances occur. **Dosage:** One tablet upon retiring. Where necessary, dosage may be increased to one tablet following the evening meal and one tablet upon retiring. **Supplied:** Bottles of 100 and 500 tablets.

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Quinamm™
(quinine sulfate 260 mg., aminophylline 195 mg.)

Specific therapy for night leg cramps

WANT ADS

RADIOLOGIST DESIRES TO LOCATE in the Rocky Mountain area. Prefer Colorado. Like to locate in or near the mountains where there is skiing and fishing. Would consider a resort area. Being a family man I am concerned about the education of my children. I am board certified in Radiology and Nuclear Medicine with 15 years experience. Desire solo practice, however, would like a reasonable amount of time off for education and vacation. I am presently Chief of Radiology in a large hospital. I want to move out of the big city. All inquiries will be answered. Address all replies to Box Number 371-6-3B, Rocky Mountain Medical Journal, 1809 E. 18th Avenue, Denver, Colorado 80218. 371-6-3B

680—1,100 SQ. FT. in the Cherry Hills Medical Arts Building complex, 3535 So. Lafayette Street, Englewood, Colorado. The space was originally set up for dental offices but would consider some changes to suit. Minutes from two fine hospitals and the New Englewood Shopping Center. Complex consists of 27 M.D.'s etc. For information call (303) 761-2543 or write Richardson & Co., 300 E. Hampden Avenue, Englewood, Colorado 80110. 371-5-2B

COLORADO PERMANENTE MEDICAL GROUP desires Board-eligible or certified physicians in:
• **INTERNAL MEDICINE** • **PEDIATRICS** • **ENT**
• **GENERAL SURGERY** • **OB-GYN** • **OPHTHALMOLOGY**
Salary open. Liberal fringe benefits. Great climate. Write: W. L. Reimers, M.D., 2045 Franklin Street, Denver, Colorado 80205. 271-3-3B

THREE-YEAR OLD FULLY EQUIPPED, AIR CONDITIONED CLINIC BUILDING, 1800 sq. ft., for rent or sale. Ideal site for either office practice only or can use open staff hospitals in Brighton or Greeley. 45 miles from Denver on Interstate 80. Smog-free rural eommunity, no drug problems, etc. Call 659-5687 after 6 p.m. 271-2-6B

GENERAL SURGEON—96 Bed GM&S hospital; located in the friendliest city in the West; Medical Center Eastern Montana; unlimited outdoor recreation; excellent schools, community college; non-discrimination in employment; salary dependent on qualifications. Write or call Frank R. Mohs, M.D., Chief of Staff, VA Hospital, Miles City, Montana 59301. 371-2-3B

G.P.—DESIRE PHYSICIAN WITH SURGICAL KNOWLEDGE. Located in heart of nation's best hunting, fishing and winter sports. Exceptional opportunity. Hospital will provide offices. Contact Steve Thomas, Administrator Star Valley Hospital; Afton, Wyoming 83110. 471-7-1

OFFICE EQUIPMENT FOR SALE—reasonable offers will be considered. If interested write for details to Mrs. O. C. Reed, 2417 West "A" Street, Torrington, Wyoming 82240. 471-2-3

NEEDED: A doctor for Lovelock, Nevada 92 miles east of Reno on Interstate 80. A full partnership is offered in a Medical Clinic, or if not agreeable a subsidy will be considered. Please contact Mr. Vern Schoenfeld, Chairman Board of Trustees, by telephone, collect at 273-2656 or 273-2681. 471-3-1B

COLORADO SPRINGS, EASTERN SECTOR, established professional building with laboratory, X-ray and professional pharmacy. For sublease immediately. Space contains one consultation office, two examining rooms, private waiting room, business office and utility office with private entrance and basement storage area. Please contact: Associates in Internal Medicine, P.C., 2310 North Tejon Street, Colorado Springs, Colorado, telephone 636-5234. 471-4-3B

INVESTMENT OPPORTUNITY—Prime recreational aereage fronting lake with small lodge near Durango. Priced to sell by owner. 20 acres of prime development land Left Hand Creek, north Boulder. Priced to sell by owner. Con Tolman, 6050 Depew, Arvada, Colo. 80002. Call 424-5177 evenings. 471-5-1B

FOR RENT—Doctors or dentists office. 1755 Gilpin Street, Denver. Lease with option to buy can be negotiated. For information, call Mr. George Blau 892-0410. 471-6-1B

GENERAL PRACTITIONER URGENTLY needed for town of 1,000 additional 5,000 people drawing area. 22 bed hospital, equipped doctors clinic. Lucrative practice. Solo, self-employed. Good hunting and fishing. Enjoy elean fresh air and no crime. Contact Gene McCracken, Administrator, Roosevelt Memorial Hospital, Culbertson, Montana 59218. 471-8-1B

WESTERN PROFESSIONAL BUILDING, 1701 So. Federal Blvd., space available, 1,800 sq. ft.—new building will divide. Southwest Denver. Large drawing area—two ophthalmologists, general dentist and optician already in building. Psychiatry, dermatology, neurosurgery, ENT, psychology, neurology and periodontics are among the many specialties and subspecialties not yet represented in this thriving suburban area of Denver. Adequate parking. Excellent location. Easy access to St. Anthony, Beth Israel, Porter and Swedish Hospitals. For information contact: L. A. Winograd, M.D.—934-5835. 371-4-2B

OPPORTUNITY: GENERAL SURGEON, prefer older man, for industrial work and assist in O.R. Salary open. No investment. Lots of free time to enjoy Las Vegas area. Contact Perry O. Williams, Henderson Clinic, 67 Lake Mead Drive, Henderson, Nevada 89015. (702) 565-8701. 1170-2-6B

SPECIALISTS NEEDED TO round out comprehensive health facilities in delightful medium-sized medically isolated great plains community. We have surgeon, radiologist, and pediatrician. Need internist, OB-GYN, ENT, eye, urologist and orthopedist. We need men willing to pioneer. Call collect or write B. S. Bordman, M.D., 336-7423, Lamar, Colorado 81052. 1070-1-ind.

OFFICE EQUIPMENT FOR SALE (Shelley, Idaho). Complete set-up suitable for GP, general surgeon, internist, orthopedist. 100 MA GE x-ray, exam tables, EKG, op table, surg instruments, etc. All excellent condition, much new. Sell all or part, marked reduction. Reply to Box 471-1-2B, Rocky Mountain Medical Journal, 1809 East 18th Avenue, Denver, Colorado 80218. 471-1-2B

Graduate Medical Assistants

Available for placement now, seven-month intensive preparation, including one month internship in a doctor's office

We welcome your inquiries!

Contact Director of Placements at (303) 222-1526

Colorado College
of Medical and Dental Assistants
655 Broadway, Denver, Colorado

BROADMOOR yourselves

for the pure pleasure of it all!

Discover America's finest resort facilities, dining and accommodations, here within 5,000 acres of enjoyment at the gateway to the Colorado Rockies.

The BROADMOOR Colorado Springs, Colorado

Prompt, professional service 24 hours a day, every day! A complete line of hospital beds, wheelchairs, traction equipment, oxygen, crutches, walkers, commodes, lamps, whirlpools—everything to help patients get well faster.

We Process MEDICARE Equipment Claims
DENVER
677 S. Colorado Blvd.
733-5521

You Can Order REPRINTS

of any feature or advertisement appearing in

The Rocky Mountain Medical Journal.

Orders must be placed within 15 days after date of publication. Minimum charge applies for 100 copies or less.

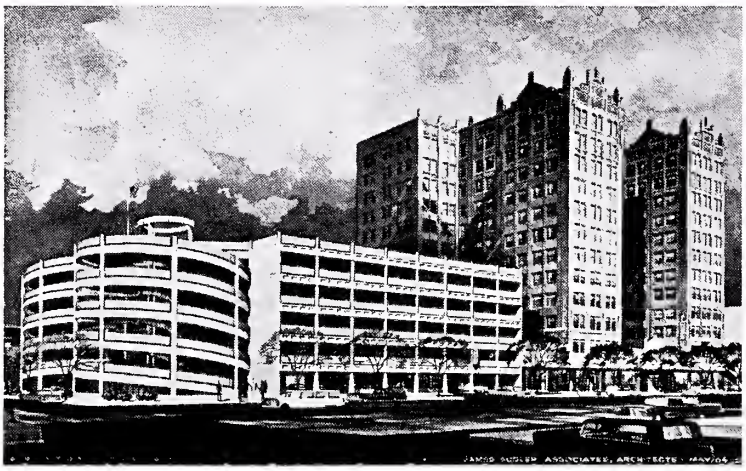
The cost is very reasonable.

For further information write to—

The Rocky Mountain Medical Journal
1809 East 18th Avenue
Denver, Colorado 80218

CENTRALLY LOCATED

For the medical and dental professions



Here, in the heart of downtown Denver, the Republic Building is the best-known Medical-Dental Center in the Rocky Mountain West, complete with 24-hour operation, X-ray; pathological and dental laboratories, pharmacy, drug and supply stores.

With the completion of the new 500-car, self-service parking facility, the Republic Building—designed and operated for the medical and dental professions—offers the ultimate in patient-convenience and medical facilities.

Space is available. Ask for illustrated brochure.

REPUBLIC BUILDING CORPORATION
306 REPUBLIC BUILDING, DENVER, COLORADO 80202
PHONE 534-5271

Abbey Rents 76

Abbott Laboratories
Erythrocin 8-10

American Cancer Society 68

Arch Laboratories
Dicarbosil 63

Berbert, George & Sons 60

Breon Laboratories
Measurin 16

Broadmoor Hotel 75

Burroughs Wellcome Company
Empirin 7

Campbell Soup Company
Asparagus 53

Colorado College of Medical and Dental Assistants 75

Denver Optic Company 58

Emory John Brady Hospital 63

Flint Laboratories
Synthroid 17-20

Lederle Laboratories
Achrostatin 68

Lilly, Eli & Company
Ilosone 12

McNeil Laboratories
Parafon Forte 11

Merck, Sharp and Dohme
Elavil 4-5

Mutual of Omaha 54

National Drug Company
Orenzyme 37
AVC 38
Tepanil 73
Quinamm 74

Newton Optical Company 71

Picker Medical Products 59

Poythress, William P. & Company
Solfoton 61

Practice Management Services 62

Public Service Company of Colorado 63

Publishers Press/
Monitor Publications 69

Republic Building Corporation 76

Riker Laboratories
Norflex 72

Robins, A. H. & Co.
Albee with C 55
Donnatal 56

Roche Laboratories
Efudex ..... Cover II, Page 1
Librax 64-65
Librium ..... Cover IV

Searle, G. D. & Company
Pro-Banthine ..... 78, Cover III

Smith, Kline & French Laboratories
Thorazine 6

Squibb, E. R. & Son
Theragran 3

His makeup is unique by tradition.
His ulcer treatment is unique by tradition, too.

In the world of entertainment, a clown's makeup remains the exclusive property of its originator. Time has established that tradition. In the treatment of ulcers and other gastrointestinal complaints, time has established Pro-Banthine as a tradition too.

Few drugs can boast a longer successful run. Introduced 17 years ago, this drug is a veteran gastrointestinal performer.

Pro-Banthine stars in the treatment of peptic ulcer, functional gastrointestinal disturbances, ulcerative colitis, hypertrophic gastritis, pylorospasm, acute and chronic pancreatitis, diverticulitis, biliary dyskinesia, hyperhidrosis, ileostomies, and colonic, ureteral or urinary bladder spasm. Its fame as an anticholinergic is worldwide.

When you want a performer you can count on . . . remember Pro-Banthine. Tradition does.

SEARLE Research in the service of medicine.
G. D. Searle & Co., Chicago, Ill. 60680

Pro·Banthine®
(propantheline bromide)
the traditional ulcer treatment

Pro-Banthine 15 mg. propantheline bromide

Pro-Banthine 15 mg. propantheline bromide with Dartal 5 mg. thiopropazate dihydrochloride

Pro-Banthine 15 mg. propantheline bromide with Phenobarbital 15 mg. warning: may be habit forming

Pro-Banthine P.A. 30 mg. propantheline bromide in time-release form

Pro-Banthine 7½ mg. propantheline bromide Half Strength

Montana Issue

Rocky Mountain Medical Journal

May 1971

VOLUME 68 • NUMBER 5

Library
College of Physicians
19 South 22nd Street
Philadelphia, Pennsylvania 19103

X

COLORADO • MONTANA • NEVADA • NEW MEXICO • UTAH • WYOMING

LIBRARY OF
COLLEGE OF PH
OF PHILADEL
MAY 20 1971

Efudex®
(fluorouracil)
cream/solution

In the treatment of solar/actinic keratoses—
An alternative to cold, fire and steel

2/23/68
Before treatment with 5% 5-FU cream. Patient R. G., 78 years old, shows extensive skin changes due to weathering and severe solar/actinic keratoses.

3/26/68
Following one month of therapy. Intense erythematous reaction is seen at sites of keratoses. Normal skin has not reacted. Some areas which had reacted initially have undergone healing despite continued topical application of 5% 5-FU.

6/11/68
Ten weeks after discontinuance of therapy. All areas have healed completely. Residual mild erythema remains in some areas. This patient also had seborrheic keratoses which, as expected, have not reacted. There is no evidence of residual lesions or recurrences.

ROCHE
Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

An alternative to conventional therapy

Efudex (fluorouracil) offers the physician a typical alternative to cryosurgery, electrodesiccation and cold-knife surgery in the treatment of solar/actinic keratoses. It is effective, comparatively inexpensive and especially well suited for treatment of these multiple lesions. Important, too, is the highly desirable cosmetic result. Clinical experience demonstrates that treatment with Efudex results in an extremely low incidence of scarring.*

Highly effective

In clinical trials, depending on the dosage form and strength used, complete involution occurred in 71 to 88 per cent of lesions following treatment. The rate of recurrence was low, ranging from 1.7 to 5.6 per cent up to a year after completion of therapy. When new lesions appeared, repeated courses of Efudex therapy proved effective.*

Predictable therapeutic response

Two to four weeks constitutes a typical course of Efudex therapy. The response is usually characteristic and predictable. After three or four days of treatment, erythema begins to appear in the area of keratoses. This is followed by an intense inflammatory response, scaling and occasionally moderate tenderness or pain. The height of the inflammatory reaction generally occurs two weeks after the start of therapy, and then begins to subside as treatment is stopped. Within two weeks of discontinuing medication, the inflammation is usually gone. A mild erythema may remain for two or three months before gradually receding. Since this response is so predictable, lesions which do not respond should be biopsied.

Two strengths—two dosage forms

Efudex is available as a 2% or 5% solution or a 5% cream. It is applied twice daily by the patient with a nonmetal applicator or suitable glove.

Before prescribing Efudex, however, two important considerations: First, please consult the complete prescribing information for precautions, warnings and adverse reactions. Second, advise the patient that treated lesions should respond with the characteristic but transient inflammation. A positive sign that Efudex is working for them.

*Data on file, Hoffmann - La Roche Inc., Nutley, New Jersey.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Efudex Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)-aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Efudex Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing-cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

new
Efudex®
(fluorouracil)
cream/solution

ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

MAY 1971

Volume 68, Number 5

Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222 (area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204

Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

Address all manuscripts, organization and other news items relating to editorial content to appropriate state editor, see below.

Editorials

21 CONTINUING EDUCATION

21 PERCUTANEOUS BIOPSIES IN DIAGNOSIS OF RENAL DISEASE

22 MEDICAL CARE — THE POLITICAL PAWN

Articles

23 ABDOMINAL BRUIT ASSOCIATED WITH BACILLARY DYSENTERY — *Richard V. Lee, MD, and Richard S. Buker, Jr., MD, Chester, Montana*

25 DIFFERENTIAL DIAGNOSIS OF LEPTOSPIROSIS IN MAN — *Herbert G. Stoenner, MD, Hamilton, Montana*

30 CORRELATION OF CORONARY ARTERIOGRAMS WITH MASTER'S TEST AND TREADMILL TEST — *Walter J. Lewis III, MD, Missoula, Montana and William J. Wilson, MD, Omaha, Nebraska*

37 DERMATOMYOSITIS AND POLYMYOSITIS — *W. A. Reynolds, MD, Missoula, Montana*

42 MAGIC, SCIENCE, AND HEAD CIRCUMFERENCE — *George H. Barmeyer, MD, Missoula, Montana*

44 POLLEN, MOLD AND PLANT SURVEY, 1970 — *L. Bruce Anderson, Jr., MD, and Gary Hoppel, Billings, Montana*

48 CARDIOVERSION IN A POSTOPERATIVE PATIENT — *Peter Rosen, MD, Worland, Wyoming*

Organization

6 PROGRAM OF NEW MEXICO MEDICAL SOCIETY ANNUAL MEETING

50 MONTANA

50 WYOMING

51 COLORADO

Features

3 LETTERS TO THE EDITOR

4 PUBLICATION RULES AND SUGGESTIONS TO AUTHORS

12 MEDICAL SCHOOL NOTES

14 MEETINGS

16 BOOK CORNER

52 POTPOURRI — *Compiled by Andrew M. Babey, MD, Las Cruces, New Mexico*

59 OBITUARIES

62 WANT ADS

64 OFFICERS PAGE

65 INDEX TO ADVERTISERS

OUR COVER PHOTO

This photograph is a portion of a larger photograph entitled, "Sioux Chief Spotted Eagle's Hostile Village Tongue River Valley, Montana Territory, November, 1879," done by L. A. Huffman, early western photographer. The picture has never been published and is owned by H. W. Busey, M.D. of Missoula, Montana.

EDITORIAL BOARD

Colorado: Douglas W. Macomber, M.D., Scientific Editor, 1800 High St., Denver (Chairman of the Board); Carl H. McLauthlin, M.D., Assistant Scientific Editor, 510 Republic Bldg., Denver.

Montana: Gerald A. Diettert, M.D., Scientific Editor, 501 W. Broadway, P. O. Box 1307, Missoula, Montana 59801; L. Russell Hegland, Associate Editor, 1236 North 28th Street, Billings.

Nevada: Harry J. McKinnon, M.D., Scientific Editor, 3196 Maryland Pkwy. S., Las Vegas; Wesley W. Hall, M.D., Assistant Scientific Editor, 607 N. Arlington Ave., Reno; Nelson B. Neff, Associate Editor, 3660 Baker Lane, Reno.

New Mexico: Marcus J. Smith, M.D., Scientific Editor, Coronado Bldg., Santa Fe; William S. Curran, M.D., Assistant Scientific Editor, 920 Stanford NE, Albuquerque; Ralph R. Marshall, Associate Editor, 3010 Monte Vista Blvd., NE, Albuquerque.

Utah: Alan E. Lindsay, M.D., Scientific Ed... 699 East South Temple, Salt Lake City; ... W. Brewster, Associate Editor, 42 South ... East Street, Salt Lake City.

Wyoming: Francis A. Barrett, M.D., Scie... Editor, 1616 E. 19th St., Cheyenne; R... Smith, Associate Editor, P. O. Box 1387, C... enne.

Donald G. Derry, Managing Editor

Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations: It is the Official Journal of the Rocky Mountain Medical Conference and those medical societies who are represented on the Editorial Board listed above.

Advertising: National representative: State Journals West, 693 St... Street, San Francisco, California 94102.
Subscription: $7.00 per year in advance, postpaid in the United St... and its possessions; single copy 60c plus postage. Subscription in... cluded in medical society dues of sponsoring state medical orga... tions.

Copyright: This Journal is copyright, 1971, by the Colorado Me... Society. Requests for permission to reproduce anything from the columns of this Journal should be addressed to the Journal Of...

Second class postage paid at Denver, Colorado

To the Editor:

EUTHANASIA
(After four years)

The plea for one more pill was written in August of 1966. It was published on the Guest Editorial page of the Denver Post on April 1, 1967. The article was sent in without a title; it came out under the heading "Euthanasia." The National Observer called to ask permission to use it, and it was printed in full on Sounding Board of Opinion of the National Observer with the headline, "That I May Go Out With Decency and Self-Respect." It was used in full in the Chicago Daily News, and most appreciated of all in the *Rocky Mountain Medical Journal* with generous comment, and other papers.

It was an honest opinion—conviction expressed as well as I could. The four years since have been unbelievable in the responses received, telephone calls, letters, and personal contacts. Almost all of these responses were for approval of euthanasia—all of which has amazed me, made me at once proud and very humble—if that is possible.

The idea of voluntary euthanasia is, by no means, new; it is only that no one has suggested such an honest simple method. It was really triggered by all the talk at that time of contraceptive pills and abortion. A book can be written on the consequences of that one short article.

The material is all here—available for a younger voice. Letters, books, and clippings have piled up for me until I am lost. This is one phase of four years after 80. The importance at this point in our American culture is the legalizing of the "how, when and why." When the rightness, the common humanity of such an exit has been established legally, there will be no problem. In the four years since 1966, the contraceptive pill and legalized abortion has become commonplace. Some honorable method of voluntary euthanasia must come about because of economic conditions and population. There were 213,325 suicides in 1967. (Denver Public Library).

What is important to me now and to the many who have said, "When you find the pill, tell me," is how, why and when? That there are equivalents to the pill in this age of pain and sleeping pills, no one can doubt.

My own feeling is that when I feel my own mental capacity weakening, when I am utterly tired, when the love of friends and family seem of no value, when I can no longer see the beauty of earth and sky, when the pains and aches of the old body are the only interest of my days, and before I can be taken to some hospital for extended care, when I can no longer bear the face that looks at me from my mirror—it will be wonderful to struggle into a fresh nightgown and "go to sleep."

Are there qualms—religious or legal?

Religious: none. If life is of the spirit, the manner of its passing can have no meaning. Voluntary euthanasia would be like freeing a living spirit from a burdensome body.

Legal: some, but only as it is against our present laws—that some blame would come to family and friends and the condition in which I live. This should not be. When the right has been established, such an act would be accepted and honored. An effort to that end must engage all of my future days.

I quote the following by Mary Rose Barrington in "Euthanasia and the Right to Die", a book by A. B. Downing: "My thesis is that humane and advanced societies are ripe for an equivalent swingaway from the idea of longevity to the concept of a planned death."

Elsie R. Garman, 1886-197?

Ec-
on-
omy!
Dicarbosil®
ANTACID
Your ulcer patients and others will appreciate it. Specify DICARBOSIL 144's—144 tablets in 12 rolls.
ARCH LABORATORIES
319 South Fourth Street, St. Louis, Missouri 63102

Publication rules and suggestions to authors

1. Who may submit articles. The Rocky Mountain Medical Journal ordinarily accepts only articles prepared by members of the state societies we serve and by guest speakers at their official meetings.

2. Method of preparation. All material for publication must be typewritten, double spaced, with liberal margins, using only one side of the paper, pages consecutively numbered, and preferably on standard 8½ x 11 white bond paper. Carbon copies are *not* acceptable.

Title (preferably short) and author's name, city and state must appear at the top of the first page. Second and subsequent pages should be identified with consecutive page numbers and author's surname. If physician authors possess more than one degree, the MD only is used. Lesser degrees of non-MD authors or co-authors may be used.

Please include beneath the title or at the top of the first page a brief paragraph stating what the article is designed to show and, therefore, why it should be read. This introductory feature is, in editorial parlance, called the "blurb"; it is printed in bold type.

3. Where to submit material. All copy must be sent to the editor for the state in which the material originates. Editors for each state, with their mailing addresses, are listed monthly on the Table of Contents page of the Journal.

4. Acceptance or rejection. The state editor will (1) tentatively accept the article, (2) return it to the author with suggestions for revision, or (3) reject it. He will edit and forward approved copy to the publication office in Denver for final editing and scheduling.

5. Order of publication. Ordinarily, articles will be published in the order received. Those whose value is seasonal, whose value would be lost if publication is delayed, or which reflect priority of original research, are given special consideration. State presidential addresses, programs, state society minutes, and timely organization announcements are given priority.

6. Length of articles. Scientific papers should be "boiled down" not to exceed ten pages of double-spaced typewritten standard 8½ x 11 inch sheets. Shorter papers are more acceptable to editors and readers, and earlier publication is probable. Every journal is in competition for the reader's time, and condensation is the order of the day. For this reason, and because of financial and space limitations, we request that copy be condensed to the greatest extent consistent with conveying the message.

7. Illustrations. A limited number of illustrations or "cuts," usually up to six, will ordinarily be accepted within our own publication budget if the editor believes they enhance the value of the article. Clear photos, simple diagrams or line drawings in black on white, printing rather than writing, reproduce well. Cuts should be mounted separately, and the paper or cardboard mounts should be the same size as that upon which the article is typed. Each should have its caption below: Fig. 1, Fig. 2, etc., with a short descriptive sentence. Authors will be billed our cost for excess above six cuts.

8. Tables. Tables should be simple, presenting only brief relevant data, amply spaced. They should be placed at the back of the manuscript on separate sheets. Each should have its number and title above: Table 1, Title; Table 2, Title; etc. Long, large, or complicated tables ordinarily are not acceptable.

9. Case reports. Case reports are popular with our readers. A brief introductory statement concerning the condition or disease, tells why the case is presented. The report follows with a separate heading, CASE REPORT or CASE 1, CASE 2, etc. Include only relevant, positive laboratory and other data. Names, initials, and numbers are unimportant; age, sex, and sometimes occupation are significant. Minimize dates; then make it month, date, year—as February 9, 1969; not 2/9/69. After the case presentation, review or sum it up under a heading such as Discussion, Comment, Summary or Conclusion.

10. Footnotes. Footnotes must be brief. One at the bottom of the first page should state the Society and date of presentation, and institutional origin, if any. Special titles or position of the author, acknowledgements, etc., will be added according to simplicity, editorial policy and discretion.

11. References. Reference lists rarely add to the value of an article for the majority of readers. We will make every effort to publish short reference lists, but long ones will be deleted. Incidentally, the proper heading is "References," not "Bibliography." The latter implies everything in the literature upon the subject. Make them uniform in style and brief, as: Jones, W. K.: Pyelonephritis in Infancy. JAMA 141:75. 1964.

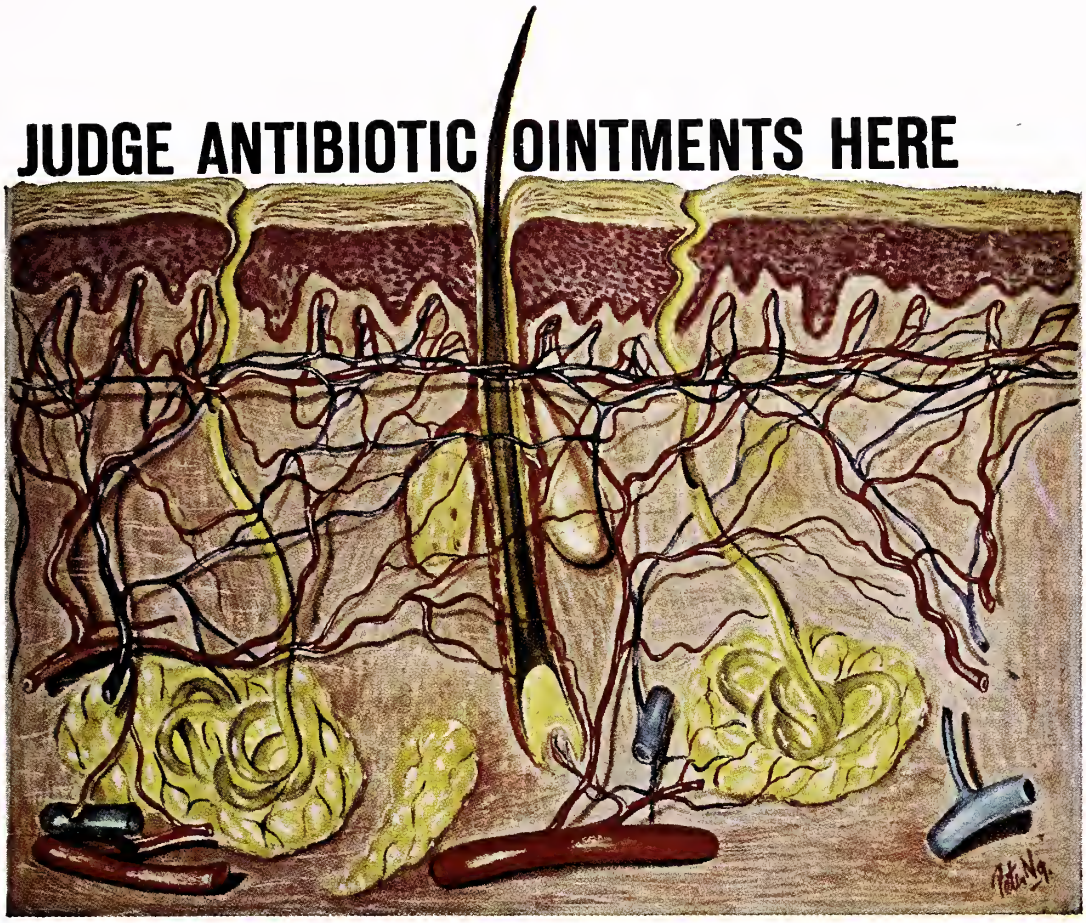
12. Editorials. We would like to have more submitted by our State editors and the membership at large. Readers must get tired of thunder from publication headquarters in Denver; frankly, we do too! Speak out, and we'll sign your name, initials, or respect your request for anonymity, as you choose. If you don't like something we do or say, please let us in on it; we could even stand to hear about it if something happens to please you. A "Letter to the Editor" may help you get something off your mind. We're asking for it and we have a place to put it—in the Journal, that is!

13. Proofs. Galley proofs are submitted to the author, and prompt return is essential. Authors should correct typographical, grammatical, or rhetorical errors, but do not reinsert or rewrite sentences, paragraphs, tables, etc., which an editor may have deleted, condensed, or paraphrased. When an article reaches the galley-proof stage, the author may NOT re-edit his article; that is the privilege of the Journal's editors.

14. Reprints. Most authors desire reprints. Our printing firm provides them on a non-profit basis. They MUST be ordered when the author submits his corrected proof.

15. Our Journal is copyrighted. We and most state and regional journals owned by state medical societies have granted each other continuing copyright permission to copy or quote with proper credit. Copyright permission is not granted to commercial or privately owned publications.

JUDGE ANTIBIOTIC OINTMENTS HERE



Results on skin are final proof of any topical antibiotic's effectiveness

No in vitro test can duplicate a clinical situation on living skin. 'Neosporin' (polymyxin B—bacitracin—neomycin) Ointment has consistently proven its effectiveness in thousands of cases of bacterial skin infection. The spectra of the three antibiotics overlap in such a way as to provide bactericidal action against most pathogenic bacteria likely to be found topically. Diffusion of the antibiotics from the special petrolatum base is rapid since they are insoluble in the petrolatum, but readily soluble in tissue fluids. The Ointment is bland and nonirritating.

Caution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

Supplied: Tubes of 1 oz., ½ oz. with applicator tip, and ⅛ oz. with ophthalmic tip.

Complete literature available on request from Professional Services Dept. PML.

'NEOSPORIN'®

brand

POLYMYXIN B-BACITRACIN-NEOMYCIN OINTMENT

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.

—Program—

Eighty-Fifth Annual Meeting

NEW MEXICO MEDICAL SOCIETY

Sheraton Western Skies Hotel

Albuquerque, New Mexico

May 19-22, 1971

WEDNESDAY, MAY 19

8:00 a.m. **ORIENTATION COURSE FOR NEW MEMBERS**

12:00 noon **Luncheon**
Continuing Education: Whose Responsibility?
C. H. William Ruhe, Director
Division of Medical Education, AMA

2:00 p.m. **First House of Delegates Meeting**

3:00 p.m. **Reference Committee Hearings**

6:30 p.m. **Reception—Honoring New Members and Delegates**

7:30 p.m. **New Mexico Medical Political Action Committee Banquet**
Speaker: *Congressman Harold Runnels,* Lovington, New Mexico

THURSDAY, MAY 20

8:00 a.m. **Registration**
General Meeting

FIRST CLINICAL SESSION

Presiding: *Harry D. Ellis, M.D.,* President, New Mexico Medical Society

DRUGS AND DRUG MISUSE IN ADOLESCENTS

9:05 a.m. **The American Drug Culture—Better Living Through Chemistry**
Alan Frank, M.D., Assistant Professor of Psychiatry, University of New Mexico School of Medicine.

9:15 a.m. **Hallucinogens and Stimulant Drugs**
Charles T. Spalding, Ph.D., Assistant Professor of Pharmacology, University of New Mexico School of Medicine

9:30 a.m. **Narcotic Analgesic Drugs; Sedative-Hypnotic Drugs**
Thomas F. Burks, Ph.D., Department of Pharmacology, University of New Mexico School of Medicine

9:45 a.m. **Withdrawal**
W. W. Winslow, M.D.

10:00 a.m. **Discussion from Audience**

11:00 a.m. **Drug Misuse in the Adolescent**
Ross Snyder, M. D., Assistant Professor, Department of Psychiatry, University of New Mexico School of Medicine

11.25 a.m. **How Do You Talk To The Teenager—Doctors and Dopers**
Larry J. Miller, Ph.D., Instructor in Psychiatry (Psychology), University of New Mexico School of Medicine

11:45 a.m. Discussion from Audience

1:30 p.m. Visit to Los Alamos Meson Facility

FRIDAY, MAY 21

SECOND CLINICAL SESSION

Presiding: *Vaun T. Floyd, M.D.,* President-Elect New Mexico Medical Society

BELL'S PALSY

9:00 a.m. Evaluation and Medical Treatment
Mark Lane, M.D., Private Practice of Neurology, Albuquerque

9:15 a.m. Surgical Treatment
William House, M.D., Research Director, Los Angeles Foundation of Otology

9:35 a.m. Questions and Answers

THE DIZZY PATIENT

9:45 a.m. Evaluation of the Dizzy Patient
Donald Seelinger, M.D., Private Practice of Neurology, Albuquerque

10:00 a.m. Surgical Treatment of the Dizzy Patient
William House, M.D., Los Angeles

10:20 a.m. Questions and Answers

DEAFNESS

11:00 a.m. Evaluation of Hearing Loss
Jerry Z. Ainsworth, M.D., Private Practice of Otolaryngology, Roswell, New Mexico

11:15 a.m. Surgical Treatment of Deafness
William House, M.D.

11:35 a.m. Evaluation and Current Treatment of Acoustic Neurinoma
William House, M.D.

12:20 p.m. Questions and Answers

FILM SESSION

1:30 p.m. Evaluation of the Neuro-Otologic Patient

2:00 p.m. Polytone Pantopaque Study

2:20 p.m. Stapedectomy Operation

3:10 p.m. Facial Nerve Decompression Operation

6:30 p.m. Cocktails

7:30 p.m. Presidential Banquet

9:00 p.m. Four + One—An Evening of Music

SATURDAY, MAY 22

FINANCIAL PLANNING SEMINAR

This Seminar will be conducted by Mr. M. Barnett Field, President, The Field NW Corporation for Convention Registrants and Wives.

12:30 p.m. Auxiliary Luncheon

2:00 p.m. House of Delegates Meeting

Mylanta®
24 million hours a day.

Through the day, every day,
ulcer patients take
one million doses of Mylanta
for relief of ulcer pain.

Mylanta®
LIQUID/TABLETS

aluminum and magnesium hydroxides plus simethicone

Good taste = patient acceptance
Relieves G.I. gas distress*
Non-constipating

*with the defoaming action of simethicone

Stuart PHARMACEUTICALS Pasadena, Calif. 91109
Division of Atlas Chemical Industries, Inc., Wilmington, Del. 19899

Picture of low back pain

treated with Parafon Forte TABLETS

Paraflex® (chlorzoxazone)* 250 mg.
Tylenol® (acetaminophen) 300 mg.

Parafon Forte tablets help to relieve pain, restore mobility... stop pain-spasm feedback

Here is why. PARAFON FORTE provides:

nonsalicylate analgesic equal to aspirin for relief of pain,[1,2] yet unlikely to cause the gastric irritation[2,3] or increased bleeding time[4] associated with aspirin therapy.

and a skeletal muscle relaxant shown in extensive clinical studies to be useful in a variety of low back disorders[5-7] but which is not an antihistamine or tranquilizer derivative and is unlikely to produce a tranquilizing or sedative effect.[8]

Prescribe PARAFON FORTE for effective spasmolysis and analgesia in acute sprains, strains and myalgias of the lower back, including acute exacerbations of chronic conditions. Your patients will appreciate the restored comfort and freedom of movement it usually provides.

Contraindications: Sensitivity to either component. ***Warnings:*** *Usage in Pregnancy*—Use in woman of child-bearing potential only when potential benefits outweigh possible risks. ***Precautions:*** Exercise caution in patients with known allergies or history of drug allergies. If a sensitivity reaction or signs or symptoms suggestive of liver dysfunction are observed, the drug should be stopped. ***Adverse Reactions:*** Occasionally, drowsiness, dizziness, lightheadedness, malaise, overstimulation or gastrointestinal disturbances may be noted; rarely, allergic-type skin rashes, petechiae, ecchymoses, angioneurotic edema or anaphylactic reactions. In rare instances, *Paraflex* (chlorzoxazone) may possibly have been associated with gastrointestinal bleeding. While *Paraflex* (chlorzoxazone) and chlorzoxazone-containing products have been suspected as being the cause of hepatic toxicity in approximately eighteen patients, it was not possible to state that the dysfunction was or was not drug induced. ***Usual Adult Dosage:*** Two tablets q.i.d. ***Supplied:*** Scored, light green tablets, imprinted "McNEIL" —bottles of 100.

References: **1.** Batterman, R. C., and Grossman, A. J.: Fed. Proc. *14*:316, 1955. **2.** Goodman, L. S., and Gilman, A., ed.: The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970. **3.** Vickers, F. N.: Gastroint. Endosc. *14*:94, 1967. **4.** Mielke, C. H., Jr., and Britten, A. F. H.: New Engl. J. Med. *282*:1270, 1970 (Corresp.). **5.** Kestler, O. C., and Gyurik, J.: Industr. Med. Surg. *21*:372, 1962. **6.** Forster, S., et al.: Amer. J. Orthop. *2*:285, 1960. **7.** Data on file, McNeil Laboratories, Inc. **8.** Friend, D. G.: Clin. Pharmacol. Ther. *5*:871, 1964.

*U.S. PATENT NO. 2,895,877

McNEIL LABORATORIES, INC., FT. WASHINGTON, PA. 19034

McNEIL

IF MORE MEN CRIED

At least seventy-five out of one hundred adults with duodenal ulcers are men.[1] Why? It may be significant that duodenal ulcer patients tend to crave recognition and are "especially vulnerable to threats to their manly assertive independence."[2]

Hypersecretion—an atavistic response. Stewart Wolf, who, with Harold G. Wolff, studied the personalities of duodenal ulcer patients, wonders if masculine competitiveness is related to "an atavistic urge to devour an adversary." It is striking, he reports, that an accentuation of gastric acid secretion and motility can be "induced in ulcer patients by discussions that arouse feelings of inadequacy, frustration and resentment."[2]

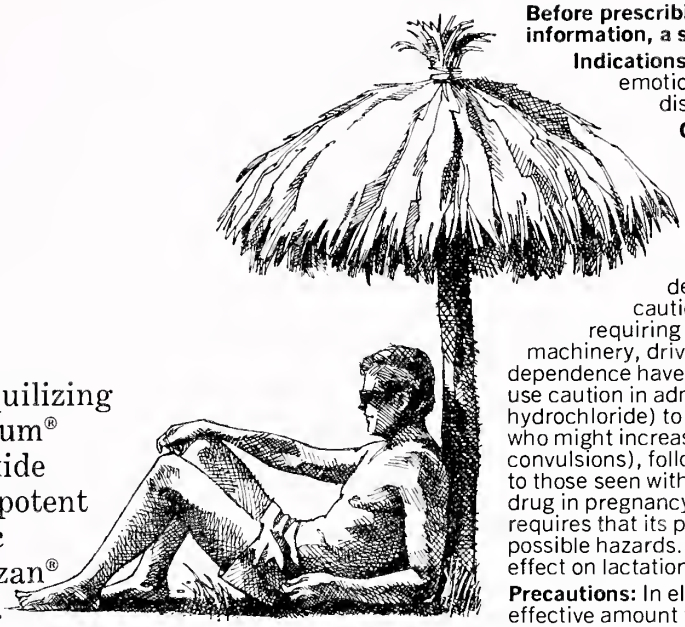
By chance? A lean, hungry lot. Was the link between emotions and gastric hyperacidity acquired through mutation to serve a purpose? During man's jungle period of evolution, the investigator points out, a male dealt with a foe by killing and devouring it. "It may be more than coincidence," he concludes, that peptic ulcer patients appear to be "a lean, hungry, competitive lot."[3]

Big boys don't cry. If more men cried, maybe fewer would wind up with duodenal ulcers. But men will be men—the sum total of their genes and what they are taught. Schottstaedt observes that when a mother admonishes her son who has hurt himself that big boys don't cry, she is teaching him stoicism.[4] Crying is the negation of everything society thinks of as manly. A boy starts defending his manhood at an early age.

Take away stress, you can take away symptoms. There is no question that stress plays a role in the etiology of duodenal ulcer. Alvarez[5] observes that many a man with an ulcer loses his symptoms the day he shuts up the office and starts out on a vacation. The problem is, the type of man likely to have an ulcer is the type least likely to take long vacations or take it easy at work.

The rest cure vs. the two-way action of Librax.® For most patients, the rest cure is as unrealistic as it is desirable. Still, the stress factor must be dealt with. And here is where the dual action of adjunctive Librax can help. Librax is the only drug that com

References: 1. Silen, W.: "Peptic Ulcer," in Wintrobe, M. M. *et al.* (eds.): *Harrison's Principles of Internal Medicine*, ed. 6, New York, McGraw-Hill Book Company, 1970, p. 1444. 2. Wolf, S., and Goodell, H. (eds.): *Harold G. Wolff's Stress and Disease*, ed. 2, Springfield, Ill., Charles C. Thomas, 1968, pp. 68-69. 3. *Ibid.*, p. 257. 4. Schottstaedt, W. W.: *Psychophysiologic Approach in Medical Practice*, Chicago, Ill., The Year Book Publishers, Inc., 1960, p. 163. 5. Alvarez, W. C.: *The Neuroses*, Philadelphia, Pa., W. B. Saunders Company, 1951, p. 384.



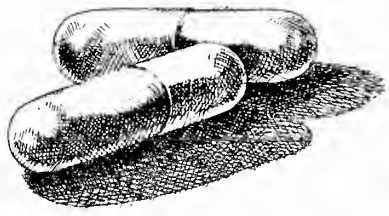
bines the tranquilizing action of Librium® (chlordiazepoxide HCl) with the potent anticholinergic action of Quarzan® (clidinium Br).

Protects man from his own hungry personality. The action of Librium reduces anxiety—helps protect the vulnerable patient from the psychological overreaction to stress that clutches his stomach. At the same time, the action of Quarzan helps quiet the hyperactive gut, decreasing hypermotility and hypersecretion.

An inner healing environment with 1 or 2 capsules, 3 or 4 times daily. Of course, there's more to the treatment of duodenal ulcer than a prescription for Librax. The patient—with your guidance—will have to adjust to a different pattern of living if treatment is to succeed. During this adjustment period, 1 or 2 capsules of Librax 3 or 4 times daily can help establish a desirable environment for healing.

Librax: It can't change man's nature. But it can usually make it easier for men to cope with the discomfort of stress—both psychic and gastric—that can precipitate and exacerbate duodenal ulcer.

Librax: Rx #60 1 cap. *a.c.* and 2 *h.s.*



Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

in the treatment of duodenal ulcer

• adjunctive

Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N J 07110

MEDICAL SCHOOL NOTES

University of New Mexico School of Medicine

Dr. Gerald M. Bordin, a resident in pathology at University of New Mexico School of Medicine, has been awarded an advanced clinical fellowship by the American Cancer Society. The grant further enlarges the medical school's active role in cancer treatment programs, and cancer research. The $6,000 fellowship to Dr. Bordin, which begins July 1 for one year, is intended to "strengthen teaching programs in cancer by encouraging outstanding young clinicians to follow academic careers upon completion of their specialty training."

The announcement of the award marks another step by the UNM School of Medicine in its active cancer program, dovetailing with President Nixon's announcement of a "broad-based and intensive attack" against cancer. Nixon's 1971 budget includes an increase of $100 million to accelerate the search "for means of preventing and curing cancer."

The National Cancer Institute is working closely with the UNM School of Medicine and the Los Alamos Scientific Laboratory in the development of a multi-million-dollar regional Cancer Treatment and Research Center. The Center, to be established at the medical school in Albuquerque, will make use of the Los Alamos Meson Facility now under construction for radiation therapy.

Numerous other cancer research projects already are underway at the medical school, concerning tumor viruses, the effects of radiation on cells, potent anti-cancer drugs, a tumor registry covering all of New Mexico, and many other types of cancer study and treatment programs.

* * * * *

There are currently more than 7,000 tumor cases listed in the New Mexico Tumor Registry, comprising a reservoir of information on cancer, which is—next to heart disease—the largest single cause of death in the United States.

Headquartered at the University of New Mexico School of Medicine, the computerized tumor registry service prepares regular reports on cancer cases treated in 45 hospitals in the state. All New Mexico hospitals with more than 100 beds and four hospitals and two health clinics in northeastern Arizona, are included. The registry was begun in 1967 as a pilot project of the New Mexico Regional Medical Program (RMP).

A primary function of the registry is to promote and assist the follow-through of medical care for cancer patients. Doctors report progress and outcome of treatment and the data are combined so that up-to-date information can be made available to them in regular reports. The follow-through, advocated by the American College of Surgeons and the American Cancer Society, is based on examinations of patients at least once a year by their physicians to detect the possible recurrence of cancer or development of second primary cancers. Information is gathered by specially trained abstractors who make regular visits to participating hospitals to record the cancer cases seen in them.

Similar tumor registry programs are operating in other parts of the country, but New Mexico is unique in having so many hospitals receiving complete tumor registry services from a central computerized facility.

The registry serves a key role in cancer education by being a tool for evaluating the effectiveness of different treatment methods and providing a source of information to physicians interested in further study. Accurate information about the number and kinds of cancer that occur in this region will play an important role in development of the Cancer Treatment and Research Center to be established by the UNM School of Medicine in conjunction with the Los Alamos Meson Physics Facility.

University of Utah Medical Center

Nearly 75 per cent of all newborn infants who die during the first year of life die within 28 days after they are born. This crucial twenty eight day span is called the neonatal period. To provide specialized intensive care for sick or premature infants during this neonatal period, the University of Utah Hospital has officially opened the Intermountain Newborn Intensive Care Center in the Hospital Pediatrics Ward. This newly remodeled and expanded center, the only one of its size and type in the Intermountain Region, is specifically designed to identify and treat sick or premature neonatal and post-neonatal infants in a specially equipped, specially staffed, intensive care environment.

* * * * *

The Biomaterials Institute of the University of Utah has received a $300,000 NIH grant to continue studies in the implantation of polymer materials (high molecular weight, chain-like molecules) in the body. The grant, covering a two year period, is the largest grant thus far given in the area of biomaterial research.

Biomaterials studies at Utah specifically involve the interaction between living and nonliving material at the cellular level, particularly at blood-polymer interfaces. The Utah Institute has made major contributions to the medical field through the development of virtually non-thrombogenic materials such as urethane and proteinated surfaces. The additional funds will allow an expansion of polymer material research into all aspects of reconstructive surgery and artificial organs.

In choosing Utah for the Biomaterials grant, the NIH cited the ability of the University to carry research from fundamental studies to clinical application. Close interaction between the College of Engineering, the College of Medicine, and other related disciplines on the University campus has made such an integrated program of research and application possible.

* * * * *

Dr. Willem J. Kolff, Professor of Surgery, College of Medicine at the University of Utah, has been chosen by the American Academy of Achievement as one of fifty giants of accomplishment from the great fields of endeavor to receive the Golden Plate award during the tenth annual Salute to Excellence weekend, June 24-26, at Philadelphia.

Director of the Institute of Biomedical Engineering, Salt Lake City, and recipient of the first Gold Medal of the Netherlands Surgical Society, Dr. Kolff has been saluted by Time for his artificial kidney development and artificial heart research.

Dedicated to the inspiration of youth, the American Academy of Achievement annually honors extraordinary leaders in the sciences, professions, industry, arts, and service to fellow man.

University of Colorado Medical Center

Dr. Charley J. Smyth, professor and head of the Division of Rheumatic Diseases in the University of Colorado School of Medicine, has been named as the first "Internist of the Year" by the Colorado Society of Internal Medicine in recognition of his outstanding achievement in the field of medicine. Dr. Smyth received a wall plaque and a citation saluting him as "a physician with a deep interest in his fellow-man."

Dr. Smyth, a national authority on arthritis, has been a member of the CU medical faculty since 1949 and has headed its Division of Rheumatic Diseases since 1960. He joined the Colorado Society of Internal Medicine in 1952 and was its president in 1957-58. A trustee of the American Society of Internal Medicine from 1967 to 1970, he has been active in the national society's membership committee since 1968.

He is also a former governor for Colorado of the American College of Physicians and was president of the American Rheumatism Assn. in 1960.

Jane Nugent Cochems Competition

The University of Colorado School of Medicine announces the Tenth Annual Cochems Competition, funds for which were provided in the will of the late Mrs. Jane Nugent Cochems. A prize of $2,500 will be awarded to the author of the best paper in the field of "Thrombophlebitis and Basic Vascular Problems." Basic vascular problems under consideration in this instance should be concerned with the underlying mechanisms or processes of vascular disease, particularly those associated with thrombosis, but not necessarily restricted to it.

The competition is open to all persons holding the doctorate degree and entries must be received in triplicate, including all charts, illustrations and photographs, on or before November 15, 1971. For income tax reasons, eligibility is limited to those physicians who are subject to U.S. income tax regulations.

The Colorado National Bank of Denver, Trustees under the will of Jane Nugent Cochems, has requested the Dean of the University of Colorado School of Medicine to conduct the competition. The judges appointed by the Dean are Dr. Sol Sherry, Professor and Chairman of the Department of Medicine, Temple University School of Medicine, and Dr. Michael E. DeBakey, Professor and Head of the Department of Surgery, Baylor University College of Medicine. Decisions of the judges are final, and they may elect at their discretion not to award the prize.

Papers submitted in the competition may not be published until after the winner has been announced early in 1972. At that time, the winning paper and all others may be published at the discretion of individual authors. It should be noted, however, that sponsors and judges of the competition will not assume any responsibility for submitting manuscripts for publication nor for any costs incident thereto. The winning paper, if published, must carry the designation, "Awarded the Jane Nugent Cochems Prize."

No entry blank or application form is required. There are no restrictive rules regarding length or format of the manuscript, joint authorship, or inclusion of such materials as pictures, charts, figures, etc. It is not required that the paper include results of original experimental work, nor that it be based on personal clinical experience. All manuscripts must be typed with double spacing and each copy together with accompanying illustrations, etc., must be submitted in a folder or cover. On request, the original copy of the manuscript will be returned if accompanied by a stamped, addressed envelope. Papers will be judged on originality, content, clarity, and critical value.

Inquiries regarding the competition and all manuscripts should be submitted to Dr. David W. Talmadge, Dean, School of Medicine, University of Colorado Medical Center, 4200 E. Ninth Avenue, Denver, Colorado 80220.

MEETINGS

University of Colorado School of Medicine Postgraduate Medical Education

GENERAL PRACTICE REVIEW
YMCA Conference Center, Estes Park, Colorado
June 21-26, 1971

OPHTHALMOLOGY
Colorado Springs, Colorado
July 5-8, 1971

PEDIATRICS
Aspen, Colorado
July 11-14, 1971

INTERNAL MEDICINE
YMCA Conference Center, Estes Park, Colorado
July 20-24, 1971

DERMATOLOGY
Aspen, Colorado
July 22-24, 1971

RECENT ADVANCES IN RHEUMATIC DISEASES
Estes Park, Colorado
July 26-29, 1971

The above dates are subject to change. Detailed programs, which will be available six to eight weeks before course date, may be obtained from The Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado 80220.

University of Utah College of Medicine Division of Postgraduate Medical Education

THIRD ANIMAL ANESTHESIOLOGY COURSE
University of Utah Medical Center,
Salt Lake City, Utah
June 25-26, 1971

Sponsored by Division of Anesthesiology, University of Utah College of Medicine Postgraduate Medical Education Section, Dept. of Community and Family Medicine, University of Utah College of Medicine, Dept. of Vivarial Science, University of Utah College of Medicine.

Fee: $40.00. Credit: (AAGP)

Open to Veterinarians, physicians.

The Utah Academy of General Practice and the Utah Obstetrical and Gynecological Society

PROBLEMS OF SEXUALITY IN CLINICAL PRACTICE
Rodeway Inn, Salt Lake City, Utah

Friday, June 11, 1971

Morning Session

WHAT SHOULD THE PHYSICIAN KNOW, AND HOW CAN HE DISCUSS PROBLEMS OF SEXUALITY.
Beverley T. Mead, M.D.
Professor and Chairman
Departments of Psychiatry and Neurology, Creighton University School of Medicine, Omaha

THE PSYCHO-PHYSIOLOGIC DYNAMICS OF SEXUALITY
Joseph B. Trainer, M.D.
Associate Professor of Physiology and Medicine, University of Oregon Medical School, Portland

SEXUAL DISORDERS IN WOMEN
Ernest W. Page, M.D.
Professor and Chairman
Department of Obstetrics and Gynecology, University of California Medical School
San Francisco

Luncheon Speaker: Beverley T. Mead, M.D.
The Battle of the Sexes

Afternoon Session

PRACTICALITIES OF ADEQUATE SEXUAL EDUCATION
Joseph B. Trainer, M.D.

SEXUAL FRUSTRATIONS AND CHRONIC PELVIC PAIN
Ernest W. Page, M.D.

CHILDREN AND OUR CHANGING ATTITUDES TOWARD SEX
Beverley T. Mead, M.D.

Attendance is strictly limited to physicians and their spouses.

This program is acceptable for eight prescribed hours by the American Academy of General Practice.

Montana Academy of General Practice
Stage Coach Inn, West Yellowstone, Montana
June 17-19, 1971

Montana Medical Association Annual Meeting
Rainbow Hotel, Great Falls, Montana
September 16-18, 1971

American Association of Medical Clinics
WESTERN REGIONAL MEETING
Disneyland Hotel, Anaheim, California
June 22, 1971

This Regional Meeting will be held in conjunction with the Medical Group Management Association, Denver and host clinic is The Tucson Clinic, Tucson, Arizona.

Physicians in group practice and those interested in group practice are invited to attend the scientific session. Timely and informative presentations concerning group practice operations will be given by authorities in the field.

The American Association of Medical Clinics is a voluntary association of physician-guided medical centers which provide medical care in their communities by means of the private group practice of medicine.

Comprising the Western Region are the following states: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming. A total of 63 AAMC member clinics are represented in these thirteen states.

Additional information concerning this meeting may be obtained by contacting Dr. Harold E. Kosanke, Tucson Clinic, 116 North Tucson Boulevard, Tucson, Arizona 85702.

Children's Hospital—Denver
WORKSHOP ON PEDIATRIC OTOLARYNGOLOGY
May 14, 1971

Congenital Airway Obstruction, Cysts and Masses of the Head and Neck, Naso-Tracheal Intubation vs. High and Low Tracheotomies, Cranio-Facial Abnormalities.

AMERICAN ACADEMY OF PEDIATRICS POSTGRADUATE COURSE
Vail, Colorado
September 13-15, 1971

Regional Newborn and Perinatal Care.

CDC SYMPOSIUM ON NUTRITION
October 22, 1971

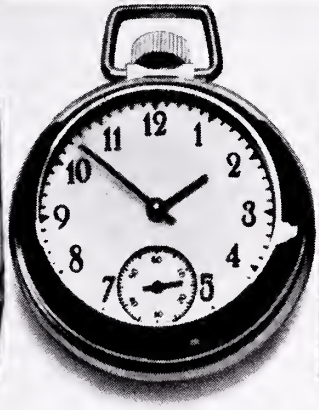
Intrauterine Malnutrition; Hyperalimentation.

BRISTOL SEMINAR ON PEDIATRIC INFECTION
December 10, 1971

American Medical Association Annual Meeting
Atlantic City, New Jersey
June 20-24, 1971

For Insomnia... one capsule for the rest of the night

NOLUDAR® 300



(methyprylon)

Before prescribing, please consult complete product information, a summary of which follows:
INDICATION: Relief of insomnia of varied etiology.
CONTRAINDICATIONS: Patients with known hypersensitivity to the drug.
WARNINGS: Caution patients about combined effects with alcohol and other CNS depressants. Caution against hazardous occupations requiring complete mental alertness, such as operating machinery or driving a motor vehicle shortly after ingesting the drug.
Physical and Psychological Dependence: Physical and psychological dependence rarely reported. If withdrawal symptoms do occur they may resemble those associated with withdrawal of barbiturates and should be treated in the same fashion. Use caution in administering to individuals known to be addiction-prone or those whose history suggests they may increase the dosage on their own initiative. Repeat prescriptions should be under adequate medical supervision.
Usage in Pregnancy: Weigh potential benefits in pregnancy, during lactation, or in women of childbearing age against possible hazards to mother and child.
PRECAUTIONS: If sleeplessness is pain-related, an analgesic should also be prescribed. Perform periodic blood counts if used repeatedly or over prolonged periods. Total daily intake should not exceed 400 mg, as greater amounts do not significantly increase hypnotic benefits.
ADVERSE REACTIONS: At recommended dosages, there have been rare occurrences of morning drowsiness, dizziness, mild to moderate gastric upset (including diarrhea, esophagitis, nausea and vomiting), headache, paradoxical excitation and skin rash. There have been a very few isolated reports of neutropenia and thrombocytopenia; however, the evidence does not establish that these reactions are related to the drug.

Each capsule contains 300 mg of methyprylon.

ROCHE
ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

The Broad Scope of Psychoanalysis: By Leopold Bellak. New York, 1967, Grune. 392 p. Price: $14.75.

Cancer and You: By Henry T. Lynch. Springfield, Ill., 1971, Thomas. 316 p. Price: $16.50.

The Chromosome Disorders: By Gordon Howard Valentine. 2nd ed. Phila., 1969, Lippincott, 172 p. Price: $8.00.

Don't Get Sick in America: By Daniel Schorr. Nashville, 1970, Aurora. 254 p. Price: $5.95.

Group Counseling and Psychotherapy with Adolescents: By Beryce W. Mac Lennan and Naomi Felsenfeld. New York, 1968, Columbia. 202 p. Price: $2.50.

Handbook of Pediatrics: By Henry K. Silver. 9th ed. Los Altos, California, 1971, Lange. 713 p. Price: $6.50.

Inflammation, Immunity and Hypersensitivity: By Henry Z. Movat. New York, 1971, Harper. 627 p. Price: $27.50.

Insurance Coverage for Mental Illness: By Joseph F. Follmann. New York, 1970, American Management Association, Inc. 135 p. Price: $5.00.

The Maltreated Child: By Vincent J. Fontana. 2nd ed. Springfield, Ill., 1971, Thomas. 96 p. Price: $7.00.

PUBLICATION PRINTING...

NEWSPAPERS • MAGAZINES
ANNUALS • QUARTERLIES
BOOKLETS • BROCHURES
REPORTS • ROSTERS • PROGRAMS
HANDBOOKS • CATALOGUES
•
EDITORIAL ASSISTANCE • BINDING
ART DEPARTMENT • MAILING

Publishers Press, Inc. / Monitor Publications

2177 W. 7th DENVER 892-0166

On Becoming A Person; A Therapist's View of Psychotherapy: By Carl Ransom Rogers. Boston, 1961, Houghton. 420 p. Price: $3.25.

Operative Surgery-Gynecology and Obstetrics, v. 13: By Charles Rob and Rodney Smith. Phila., 1971, Lippincott. 210 p. Price: $18.00.

Social Psychiatry in Practice: By Maxwell Jones. Baltimore, 1968, Penguin. 190 p. Price: $1.25.

The Unconscious Mind; The Meaning of Freudian Psychology: By Benjamin B. Wolman. Englewood Cliffs, New Jersey, 1968, Prentice. 244 p. Price: $2.95.

Book Review

Life of X-Ray Discoverer told in New University of Arizona Press Biography. "The Life of Wilhelm Conrad Roentgen," the biography of the discoverer of the X-ray and first recipient of the Nobel Prize in physics, has just been released by the University of Arizona Press.

The book by W. Robert Nitske traces the life and work of the great German physicist from his childhood in the Rhein-Provinz of Prussia through his education and early experimental works. Insight into Roentgen's personal as well as scientific and academic life is given, depicting him as a "lively and merry vacation companion, and a sympathetic and understanding husband and father."

A friend from his later years said of him, "Roentgen was in every sense the embodiment of the ideals of the 19th century: strong, honest and powerful . . ."

The significance of radiation in diagnostic medicine and other areas was grasped immediately but Roentgen remained practically unknown to the general public. He expected, even intended this, however, and remarked that his work would be "superseded by that of others" and that the memory of his life and work would "gradually disappear." To prevent this, the author wrote this biography after spending several months in Germany and surrounding areas, researching the various facets of the scientist's life. The book is available for $8.50.

Nitske, born and educated in Germany, immigrated to the United States as a young man. After service with the U.S. Army in World War II, he turned to writing as a profession and has published many articles and several books. The Roentgen biography contains an extensive bibliography and is illustrated with 22 photographs.

Newton Optical Company

Catering to Medical Profession Patronage

309 16th Street
Denver 80202

GUILD OPTICIANS

Telephone
534-8714

when an unnerving experience compounds the pain

the compound analgesic that calms instead of caffeinates

In addition to pain, this patient has experienced anxiety, fear, embarrassment, and frustration. No doubt these psychic factors actually increased her perception of pain. Surely the last thing she needs is an analgesic containing caffeine. The logical choice is Phenaphen with Codeine. It provides a quarter grain of phenobarbital to take the nervous "edge" off, so the rest of the formula can control the pain more effectively. It's no accident that the Phenaphen formulations contain a sedative rather than a stimulant. Don't you agree, Doctor, that psychic overlay is an important factor in most of the accident cases you see?

Phenaphen®

with Codeine

Phenaphen with Codeine Nos. 2, 3, or 4 contains: Phenobarbital (¼ gr.), 16.2 mg. (warning: may be habit forming); Aspirin (2½ gr.), 162.0 mg.; Phenacetin (3 gr.), 194.0 mg.; Hyoscyamine sulfate, 0.031 mg.; Codeine phosphate, ¼ gr. (No. 2), ½ gr. (No. 3), or 1 gr. (No. 4) (warning: may be habit forming). **Indications:** Provides relief in severer grades of pain, on low codeine dosage, with minimal possibility of side effects. Its use frequently makes unnecessary the use of addicting narcotics. **Contraindications:** Hypersensitivity to any of the components. **Precautions:** As with all phenacetin-containing products, excessive or prolonged use should be avoided. **Side effects:** Side effects are uncommon, although nausea, constipation and drowsiness may occur. **Dosage:** Phenaphen No. 2 and No. 3—1 or 2 capsules every 3 to 4 hours as needed; Phenaphen No. 4—1 capsule every 3 to 4 hours as needed. For further details see product literature.
A. H. Robins Company, Richmond, Va.

A·H·ROBINS

'head clear upon arising'

For upper respiratory allergies and infections including the common cold, Dimetapp Extentabs® effectively relieve the stuffiness, drip and congestion all night and all day long on just one Extentab every 12 hours. For most patients drowsiness or overstimulation is unlikely.

prescribing information appears on next page

A·H·ROBINS

A. H. Robins Company
Richmond, Va. 23220

Dimetapp® Extentabs

Dimetane® (brompheniramine maleate), 12 mg.; phenylephrine HCl, 15 mg.; phenylpropanolamine HCl, 15 mg.

Dimetapp Extentabs®

INDICATIONS: Dimetapp Extentabs are indicated for symptomatic relief of allergic manifestations of upper respiratory illnesses, such as the common cold, seasonal allergies, sinusitis, rhinitis, conjunctivitis and otitis. In these cases it quickly reduces inflammatory edema, nasal congestion and excessive upper respiratory secretions, thereby affording relief from nasal stuffiness and postnasal drip.
CONTRAINDICATIONS: Hypersensitivity to antihistamines of the same chemical class. Dimetapp Extentabs are contraindicated during pregnancy and in children under 12 years of age. Because of its drying and thickening effect on the lower respiratory secretions, Dimetapp is not recommended in the treatment of bronchial asthma. Also, Dimetapp Extentabs are contraindicated in concurrent MAO inhibitor therapy.
WARNINGS: *Use in children:* In infants and children particularly, antihistamines in overdosage may produce convulsions and death.
PRECAUTIONS: Administer with care to patients with cardiac or peripheral vascular diseases or hypertension. Until the patient's response has been determined, he should be cautioned against engaging in operations requiring alertness such as driving an automobile, operating machinery, etc. Patients receiving antihistamines should be warned against possible additive effects with CNS depressants such as alcohol, hypnotics, sedatives, tranquilizers, etc.
ADVERSE REACTIONS: Adverse reactions to Dimetapp Extentabs may include hypersensitivity reactions such as rash, urticaria, leukopenia, agranulocytosis and thrombocytopenia; drowsiness, lassitude, giddiness, dryness of the mucous membranes, tightness of the chest, thickening of bronchial secretions, urinary frequency and dysuria, palpitation, hypotension/hypertension, headache, faintness, dizziness, tinnitus, incoordination, visual disturbances, mydriasis, CNS-depressant and (less often) stimulant effect, anorexia, nausea, vomiting, diarrhea, constipation, and epigastric distress.
HOW SUPPLIED: Light blue Extentabs in bottles of 100 and 500.

Income Protection for Doctors

As a member of the Colorado Medical Society you can purchase up to $1,000.00 a month in disability income protection at special money-saving rates.

These benefits are TAX-FREE — not subject to any Federal Income Tax. They're yours to spend as you see fit — for your regular living expenses or for whatever other purpose you choose.

So don't take chances! Offer your family the extra income protection your Colorado Medical Society Plan can provide. Get all the facts on this great coverage by filling out and mailing the coupon below today.

Mutual of Omaha®
The Company that pays
Life Insurance Affiliate: United of Omaha
Mutual of Omaha Insurance Company
Home office: Omaha, Nebraska

Colorado Division Office
Mutual of Omaha
2nd Floor, Railway Exchange Bldg.
Denver, Colorado 80202

Please rush me full details on the Colorado Medical Society's Disability Income Protection Plan.

Address .....

Name .....

City ..... State ..... Zip .....

2-5-8-11-71

Now available for your prescribing needs

Cordran® Tape

Flurandrenolide Tape (4 mcg. per sq. cm.)

Additional information available upon request • Eli Lilly and Company, Indianapolis, Indiana 46206

000121

Lilly

Continuing Education

THIS WRITER HAS recently returned from another "big medical meeting" with that same feeling of frustration and anger. Advertised as "continuing education," they follow the same traditional pattern. The day begins with a parade of investigators. The room is darkened so that each may show his multicolored slides which project so badly they are but a blurred rainbow. The maze of data they demonstrate, mostly insignificant, would make Sherlock Holmes shrink in dismay, but they illustrate the investigator's diligence in the laboratory.

The day wears on with only the speaker's rivals attentive, waiting for that statement with which they can "nail him to the wall." The rest of the audience has dozed off or retired to the corridor for some relief and a visit with a fellow practitioner or two.

Finally, each speaker has had the opportunity to show he has made use of the travel allowance in his grant and it is time for the clinical portion of the program. This characteristically consists of a panel of from two to five "authorities," each of whom has his own pet theory of the mechanism of some minutiae. There follows an hour of spirited debate, no one giving ground as the allotted time runs out. The audience retires, searching a drink and hoping that things will be better tomorrow.

Years ago, the medical meeting was devised to pass on experiences which were thoughtfully designed to be helpful in caring for patients with disease. Perhaps some of the larger medical organizations could use that theme—at least for old time's sake—at their next annual meeting.

G. A. Diettert, MD*
Missoula, Montana

*Editor of Montana Section, Rocky Mountain Medical Journal.

Percutaneous Biopsies in Diagnosis of Renal Disease

PERCUTANEOUS RENAL BIOPSIES have now been firmly established as a valuable means of obtaining information concerning many renal diseases. Kidney biopsy has also been helpful in supporting the diagnosis of suspected collagen vascular disease and other diseases with diffuse systemic involvement. Kidney biopsy has been particularly useful in determining the nature of the lesion in patients who have the nephrotic syndrome.

For a number of years, it was felt that those patients who had the "idiopathic" nephrotic syndrome deserved a trial of corticosteroids. As more has been learned about the nature of the glomerular lesion in these cases, it has been shown that only one type of lesion, that is the "minimal lesion," also described as "no abnormality seen via light microscopy" lesion, has responded to steroids. The other types of common glomerular involvement, i.e., diffuse membrane thickening, commonly known as membranous glomerular nephritis, and proliferative lesions of the glomerulus as well as mixed membrano-proliferative lesions do not respond satisfactorily to corticosteroids. In fact, controlled studies, done primarily in Great Britain, have demonstrated the complications encountered were significantly greater in the corticosteroid-treated group than in the non-treated group in those patients with the "idiopathic" nephrotic syndrome whose glomerular lesion shows one of the aforementioned abnormalities other than the "minimal lesion" or, "no abnormality seen via light microscopy."

The last type of lesion does seem to have a favorable response to the administration of corticosteroids. This difference in response has been responsible for the confusion and

uncertainty over which patients would be steroid "responders." Not infrequently, patients with the membranous type of lesion have shown an apparent response to steroids but, with controlled studies, it has been shown that the natural history of this disease is one of exacerbation and spontaneous remissions.

This is just one example where it is currently felt that a kidney biopsy is of value in determining which patients should be treated with steroids as well as making certain prognostic implications. Hopefully, kidney biopsy will be used more frequently in the future in these situations.

J. H. Reiter, MD
Missoula, Montana

Medical Care— The Political Pawn

The Rocky Mountain Medical Journal has made an honest effort to keep its readers posted on the innumerable problems besetting our profession economically and politically. It is practically impossible for your editors to come up with anything that we haven't read in newspapers and magazines. About the best we can do is organize, digest, interpret and pass the residue on to you. At this time, your attention is directed to what the Nixon administration will present to the public as most palatable politically. In other words, what kind of medical care will the taxpayers (voters) be willing to buy. Many of them have had experience with governmental medicine—V.A. hospitals, Medicare, and Medicaid among the rest. It is common knowledge that patients stay in V.A. hospitals over twice as long as in private hospitals for comparable conditions. At fifty or more dollars per day, it counts up—and the people know who is picking up the tab. Many of these consumers are thoughtful enough to wonder if the quality of medical care will be lowered as more and more physicians work for the government.

Unfortunately many people believe whatever they see in print, and there are plenty of self-styled "experts" who are suppliers of biased data for publication. They are anxious to prescribe for our ills and to lead the mob in whatever direction it appears to be going. Let us hope that all of these people, leaders and followers alike, will look at other federal systems along with the tax bills that they entail. Simple judgment then points up where ponderous big government leads us. How about paying billions of dollars to farmers for not producing food, while there are hungry people in other lands; which subsidizes tobacco on the one hand and condems smoking on the other; which leads us into a fruitless war in one part of the globe and aids one factor and opposes another on the opposite side of the globe. The unfavorable trade balance, overwhelming indebtedness, and creeping inflation can do without another colossal project, something like universal health insurance (UHI) for fifty billion dollars a year or thereabouts.

To us it appears that the thinkers, planners, and writers upon the subject of more and better medical care are placing comparatively minor emphasis upon the basic problem—adequate medical manpower! What good are all the sophisticated therapeutic modalities and some 3,700 new hospitals and nursing homes built with Hill-Burton money if we don't have the manpower to use them? There have been some ten billion dollars in grants for biomedical and other research toward keeping people alive to acquire more diseases to be treated. It is gratifying to note—as at the University of Colorado Medical Center — courses in Family Medicine.

It is taking many years, more time and much more money, to train health professionals than it did in the past. In twenty years, medical schools have come to produce about 8,000 instead of 5,000 new doctors annually. But the need is at least twice this number! About 20,000 prospective students apply for admission to medical schools annually but about half are rejected. Of those rejected, one-third to one-half are qualified, which means that medical schools lack space for up to 5,000. Why should not the "experts," both in and out of politics, start at the beginning and turn out more doctors, plus competent ancillary workers to help carry the load — *if* they really want *all* American people to have adequate medical care?

Abdominal bruit associated with bacillary dysentery

Richard V. Lee, MD* and Richard S. Buker, Jr., MD,
Chester, Montana

The presence of a lower abdominal bruit in children with a febrile, diarrheal illness may be a clue to the diagnosis of bacillary dysentery due to Shigella.

THE CLASSIC CLINICAL presentation of bacillary dysentery in infants and young children is well described and readily recognized: fever, diarrhea with mucous and occasional blood and pus, tenesmus, dehydration, and prostration.[1-4] Acute diarrheal syndromes associated with viruses, Salmonellae and enteropathogenic E. coli may occasionally have similar clinical appearances but, except for Shigella and E. coli, antibiotic therapy is not necessary and may even be undesirable.[4,5] Early diagnosis is therefore of value in selecting appropriate antibiotic therapy. Bacterial culture is the only reliable diagnostic tool but may take 24 to 48 hours. Historical and clinical findings may, however, increase the clinician's index of suspicion. We have observed the presence of a lower abdominal systolic bruit in children with culturally documented Shigellosis. The bruit has been noted only in children with Shigella gastroenteritis.

CASE REPORT

Case 1. A 9-year-old Indian girl had the onset of periumbilical pain, nausea, vomiting and nonbloody diarrhea eight hours before admission to hospital. Examination showed a temperature of 105° (R), pulse 110/min., and diffuse abdominal tenderness, worse in the flanks and lower abdomen. There was marked bilateral costovertebral angle tenderness. Bowel sounds were hyperactive and a loud systolic bruit was heard over the lower abdomen. There was no organomegaly. There was a soft, grade 1/6, systolic, nonradiating murmur at the pulmonic area. The Hgb was 12.1 Gm%, the WBC 30,000 with a shift to the left. A urine culture was negative; stool grew Shigella sonnei. Twenty-four hours later, after intravenous fluids and ampicillin, she was afebrile and the lower abdominal bruit could no longer be heard.

Case 2. A 7-year-old Indian boy suddenly developed nausea, vomiting and fever about eight hours before admission. Examination revealed an acutely ill child with a temperature of 103.6 (R) and a pulse of 140/min. The heart and lungs were unremarkable. The abdomen was soft and minimally tender, with hyperactive bowel sounds and a soft, systolic bruit in the left, lower quadrant. The WBC was 36,450 with a shift to the left. Shortly after admission he had the onset of explosive, mucousy diarrhea which grew out Shigella sonnei on culture. Within twenty-four hours, he was afebrile, the diarrhea had subsided and the bruit was gone. He had been given ampicillin and symptomatic treatment.

Case 3. A 13-year-old white boy was seen 24 hours after the onset of nausea, vomiting and diarrhea. There had been a large amount of mucous in the watery stool, but no blood. His mother and two sisters had had similar though less severe symptoms. The temperature was 98.6 (O) and the examination was normal except for the abdomen, which was tender in the left lower quadrant with a prominent bruit in the same area. The bowel sounds were hyperactive. A rectal swab grew Shigella sonnei on culture. He was treated at home with Furoxone and fluids, and when seen six days later, the diarrhea had ceased and the bruit could not be heard.

*Address Reprint Requests to Dr. Lee: Division of Inflammatory Diseases, Department of Internal Medicine, Yale University School of Medicine, New Haven, Connecticut.

Discussion

The children reported live in North Central and Northeastern Montana on or adjacent to Indian reservations. These areas are well known for their high incidence of diarrheal disease, especially Shigellosis.[6] The abdominal bruit has infrequently been associated with diarrheal disease, and then always with bacillary dysentery caused by Shigella. The most commonly associated organism has been *S. sonnei;* the most frequently isolated Shigella from this area has been *S.* flexneri.[6]

During the three year period, 1966 to 1969, a large number of children seen by us had diarrhea with negative stool cultures. None of these were noted to have an abdominal bruit. A small number of children with Salmonella diarrheal disease did not have abdominal murmurs. No adults had bruits, even with Shigella in the stool.

The bruit is presumably caused by a summation of increased cardiac output due to fever and increased blood flow to the acutely inflamed bowel wall through the superior and inferior mesenteric arterial systems. The rapid disappearance of the murmur with defervescence and slowing or cessation of the diarrhea supports this hypothesis. The absence of an abdominal bruit in infected adults is most likely related to larger blood vessels, less severe disease and inflammation of the colon and, therefore, a less marked increase in relative blood flow through the mesenteric arteries. Why S. sonnei seems to produce an abdominal bruit more frequently than other species is not clear.

Except for a previous notation by the authors,[7] there has been no description of an abdominal bruit associated with bacillary dysentery. In our experience, a lower abdominal bruit in a febrile patient with diarrhea has been a reliable indicator of Shigellosis. It is desirable that a more extensive and carefully controlled study be undertaken to confirm this impression. •

REFERENCES

[1] Cecil and Loeb: Textbook of Medicine, Twelfth Ed. P. B. Beeson and W. McDermott, Eds. W. B. Saunders, Co., Philadelphia, 1967.
[2] Davison, W. C.: A bacteriological and clinical consideration of bacillary dysentery in adults and children. Medicine 1:389, 1922.
[3] DuPont, H. L., Hornick, R. B., Dawkins, A. T., Snyder, M. J., and Formal, S. B.: The response of man to virulent Shigella flexneri, 2a, J. Infec. Dis. 119:296, 1969.
[4] DuPont, H. L., and Hornick, R. B.: Diarrheal Diseases, in Disease-A-Month, July, 1969.
[5] Butt, J. H., and Fleshler, B.: Therapy of acute bacterial gastroenteritis. Med. Clin. No. Amer. 47:1315, 1963.
[6] Reller, L. B., Gangarosa, E. J., and Brachman, P. S.: Shigellosis in the United States. Amer. J. Epidemiol. 91:161, 1970.
[7] Lee, R. V.: Letter to the Editor, New Eng. J. Med. 277:313, 1967.

You Can Order Reprints

of any feature article or advertisement appearing in The Rocky Mountain Medical Journal.

Orders must be placed within 15 days after date of publication. Minimum charge applies for 100 copies or less.

The cost is very reasonable. For further information write to—

The Rocky Mountain Medical Journal

1809 East 18th Avenue
Denver, Colorado 80218

Differential diagnosis of leptospirosis in man*

Herbert G. Stoenner, DVM, Hamilton, Montana

ALTHOUGH HISTORICAL REVIEWS of medical problems of man have suggested that leptospirosis was the cause of some epidemics of jaundice many centuries ago, the disease, as a clinical entity, was first recognized by Weil,[1] in 1886, as an infectious disease with which icterus and nephritis were associated. Almost 30 years later Inada et al[2] of Japan identified the causative organism as a spirochete, which was subsequently differentiated from other spirochetes by Noguchi,[3] and placed taxonomically in a new genus, Leptospira.

The protean nature of leptospirosis probably was a significant factor in its prolonged existence without recognition of its true etiology. During early investigations on yellow fever, this disease was confused with leptospirosis caused by the icterohaemorrhagiae serotype. Since jaundice was a prominent feature of both diseases, the reason for confusion is readily understood. Because leptospires could be isolated from many patients thought to have yellow fever in the Western Hemisphere, Noguchi was not convinced of the viral etiology of yellow fever, and the controversy was not resolved until the viral etiology of yellow fever was later firmly established.

The confusion surrounding leptospirosis extends even into more recent history of this disease. During World War II, a distinct clinical syndrome known as pretibial fever or Fort Bragg fever occurred for three summers among troops in training in North Carolina.[4] An agent, isolated from affected soldiers, caused a fatal disease in hamsters and, at that time, convalescent serum from patients was shown to neutralize the agent in hamsters. For the next ten years, this agent was carried as a "virus" by serial passage in hamsters, guinea pigs, and embryonated hens' eggs. Research workers in the field of leptospirosis then fortuitously discovered that convalescent serums retained in reference storage for a whole decade had agglutinins for the autumnalis serotype. They subsequently demonstrated the leptospiral organism in infectious material that had been carried for 365 passages in hamsters, guinea pigs, and eggs.[5]

Veterinarians fared no better than physicians in their ability to recognize this disease among livestock and family pets. Unquestionably, the disease existed in this country long before it was recognized. Meyer et al.,[6] in California, first isolated the canicola serotype from clinically affected dogs in 1937. In 1944, Jungherr[7] demonstrated leptospires in tissues of three dairy cows that died after a brief illness, but it was not until four years later that the pomona serotype was recovered from cattle. In subsequent years, sheep, horses, and swine throughout the United States also were shown to be affected by this serotype.

The increase in knowledge about leptospirosis has been tremendous during the past two decades. On a world-wide basis, more than 130 serotypes have been identified, most of which cause disease in man or animals. In the United States, at least 20 serotypes have been isolated and identified from human and animal sources, and serologic evidence of the occurrence of other serotypes has been obtained. However, for practical purposes, we should consider only those which commonly

*From the Department of Health, Education and Welfare, Public Health Service, National Institutes of Health, National Institute of Allergy and Infectious Diseases, Rocky Mountain Laboratory, Hamilton, Montana 59840. Taken, in part, from a presentation at a Symposium on Viral Diseases, 23-24 October, 1970, Boise, Idaho, sponsored by the Center for Disease Control, Public Health Service, Department of Health, Education, and Welfare, Atlanta, Georgia, the Idaho Medical Association and the Idaho Veterinary Medical Association.

cause disease in man. These would include icterohaemorrhagiae, canicola, pomona, autumnalis, grippotyphosa, ballum and hardjo.

During the past seven years in this country, 70 to 142 human cases have been reported annually.[8] What proportion these numbers represent of the actual numbers of cases occurring annually is a matter of speculation, but there is no question about the disease being overlooked by physicians and underreported. It is conservatively estimated that less than one per cent of the cases are recognized and reported. Usually, cases are diagnosed when some physicians or research workers become interested in the problem. This fact is amply illustrated by the distribution of cases occurring in this country from 1965 to 1968. More than half of the cases were reported from Texas, Florida, Iowa, Louisiana, and California where good diagnostic services are provided and physician interest is above average.[8] Observations in Iowa provide further evidence of underrecognition. Prior to 1958, only two cases of human pomona leptospirosis had been reported from Iowa. During the next two years, serums submitted to the state diagnostic laboratory from patients with febrile diseases were treated for agglutinins against only the pomona serotype, and 82 cases of leptospirosis were diagnosed.[9] Once the disease was brought to the attention of physicians, a large number of cases were recognized and reported in succeeding years.

Epidemiology

Many species of animals in nature are infected with leptospires. These organisms are obligate parasites which, through centuries of association and adaptation, have achieved a balance with their primary host that enables their survival in convoluted tubules of the kidney for prolonged periods. In many instances, this host-parasite relationship is so well balanced that the leptospires cause little or no disease in the host. Such is the case with ballum infection in mice, and icterohaemorrhagiae infection in rats. In other primary hosts, for example, canicola infection in dogs, the balance has not been so well established and some infections cause clinical disease and death. Since man is not a natural host to any serotype, infection usually causes disease, the severity of which is dependent upon the virulence of the particular serotype.

With few exceptions, the epidemiology of the disease is similar in natural and unnatural hosts. The organism gains entrance to the body through mucous membranes, abrasions in the skin, and even the unbroken skin. It then multiplies in various tissues and the blood stream until serum agglutinins appear. After this event, the organism localizes in the kidneys, continues to reproduce at that site, and leaves the host in the urine. In the natural host, shedding of leptospires is usually heavy and prolonged, possibly for the life of the host, whereas in unnatural hosts shedding is of limited time and reduced in numbers of leptospires. Once in an extra-host environment, the organism must find damp soil or water or it will die in a matter of hours. Even in an aqueous environment of optimum pH, the organism usually does not survive for more than a few weeks.

Pathogenesis

Variations in the response of different hosts to infection and variations in virulence of the large number of pathogenic serotypes contribute to the protean character of leptospirosis. The pomona, canicola, grippotyphosa, autumnalis, and australis serotypes possess a hemolysin active against erythrocytes of ruminants, man, and dog. All serotypes have not been examined for this factor but some are known not to possess it. Of the susceptible mammals, ruminants are at least 50-fold more sensitive to the hemolysin than is the dog or man. Hence, leptospirosis of cattle and sheep, commonly caused by pomona and grippotyphosa serotypes, is characterized by extensive red cell destruction and resultant anemia. Other pathogenic mechanisms have not been fully elucidated, but damage to capillary walls and cells of parenchymatous organs is thought to be due to a toxin, since leptospires do not invade enough cells to cause such extensive tissue damage. Serotypes also vary in their proclivity to localize in various organs after the initial immune response to infection. Serotypes icterohaemorrhagiae, pomona, canicola, and autumnalis are some that localize in the anterior

TABLE 1
CLINICAL MANIFESTATIONS OF LEPTOSPIROSIS IN MAN, LISTED IN ORDER OF DECREASING FREQUENCY

Signs	Symptoms
Fever, Biphasic	Headache
Injection of Conjunctival Vessels (early disease)	Nausea and Vomiting
Muscle Tenderness	Myalgia
Abdominal Tenderness	Chest Pain
Nuchal Rigidity	Abrupt Onset
Cough	Chills or Chilly Sensations
Jaundice	Retrobulbar Pain
Generalized Lymphadenopathy	Photophobia
Hepatomegaly	Arthalgia
Splenomegaly	
Rash, Macular or Maculopapular	

chamber of the eye of man—and the pomona serotype is commonly associated with periodic ophthalmia of horses. This serotype and canicola often localize in the cerebrospinal fluid of man and cause signs of miningitis.

Clinical leptospirosis in man

In the United States, leptospirosis in man is caused primarily by serotypes icterohaemorrhagiae, canicola, and pomona, which have been shown by Heath et al.[10] to be the cause of 75 per cent of 483 cases diagnosed from 1949-1961. The first organism is the cause of Weil's disease which is characterized by icterus, severe impairment of renal and hepatic functions, and vascular decompensation. Unfortunately, this picture is so firmly ingrained in the minds of physicians that they fail to recognize the more common milder disease caused by canicola and pomona serotypes. The observation that most acute-phase serums submitted for diagnostic serology are deeply icteric suggests that physicians usually do not consider leptospirosis unless the patient is icteric.

The most frequently encountered clinical manifestations of leptospirosis are listed in Table 1. None are pathognomonic, and it is obvious that many are commonly seen in othr infectious diseases. Perhaps the single sign most noted by physicians experienced with the disease is hyperemia and pericorneal injection of conjunctival vessels, without excessive secretion. This sign, when seen with some of the others, expecially muscle tenderness and nuchal rigidity, is highly suggestive of leptospirosis. History of possible contact with leptospires through swimming in natural streams, accidental immersion in contaminated water, close contact with dogs, or through occupational exposure (animal industry) may prompt further consideration of leptospirosis as a tentative diagnosis.

Diseases most frequently confused with leptospirosis (Table 2) should be considered in the differential diagnosis of leptospirosis. Of these, most misdiagnoses involve aseptic meningitis and viral hepatitis. The leukopenia associated with infectious hepatitis may help to differentiate this disease from leptospirosis, but leukopenia with a relative neutrophilia is occasionally seen in the benign type of leptospirosis. Clinical laboratory findings are helpful, but few cases of leptospirosis are characterized by all the changes notel in Table 3. It is obvious that this disease cannot be diagnosed on clinical grounds, and it requires laboratory confirmation by demonstrating the leptospires or an immune response to the infecting serotype.

Diagnosis of leptospirosis

Diagnosis must be based on microscopic demonstration of leptospires in urine or tissues, recovery of the organism from the patient by inoculating suitable media or laboratory animals, or by demonstrating an immune response to the infecting serotype. Unfortunately, a diagnosis cannot be established

TABLE 2
DISEASES OF MAN CLINICALLY CONFUSED WITH LEPTOSPIROSIS

Aseptic Meningitis	Echo Virus Infection
Viral Hepatitis	Typhoid Fever
Influenza	Encephalitis
Nephritis	Pneumonia
Poliomyelitis	Cholecystitis
Brucellosis	Appendicitis
Coxsackie Infection	Infectious Mononucleosis

TABLE 3
CLINICAL LABORATORY FEATURES OF LEPTOSPIROSIS IN MAN

Benign Type (aseptic meningitis)
- Mild Leukocytosis (occasional leukopenia), with Neutrophilia
- Increased Spinal Fluid Pressure, with Pleocytosis
- Hypochromic Anemia
- Mild Proteinuria

Severe Type (Weil's disease)
- Leukocytosis, with Neutrophilia
- Proteinuria
- Anemia
- Hematuria
- Increased Spinal Fluid Pressure, with Pleocytosis
- Elevated Blood Urea Nitrogen
- Elevated Serum Bilirubin

during the acute febrile phase, because antibodies do not appear until seven to ten days after onset. Hence, serologic results are of little value in guiding therapy, but they should enhance the physician's ability to recognize the disease.

The most practical method of confirming a clinical diagnosis is the detection of an immune response by serologic means. Although a variety of tests have been developed and used for leptospiral serology, essentially three remain in current use. The original microscopic agglutination procedure,[11] in which living organisms are used as antigens, is the most sensitive but most difficult to perform. Two plate tests,[12,13] for which antigens are commercially available, also are currently used. Titers obtained by these three tests are not comparable because the antigens are prepared differently and the procedures are not the same. Nevertheless, each will detect and measure the immune response. Preferably, the first blood specimen should be taken when the serum is free of agglutinins, but a four-fold or greater rise in titer between acute- and convalescent-phase serums is considered diagnostic. The patient should develop a peak titer of at least 1:1000 as measured by the microscopic test, and by the plate test[13] with formalin-fixed antigens the peak titer should be at least 1:40. It should be noted that the antibody response is suppressed in patients treated early with antibiotics and it may not reach diagnostic levels.

In most cases the antibody response is directed specifically toward the infecting serotype, but occasionally higher titers will appear against a serotype other than the one causing the infection (paradoxical reaction). Frequently it is the early antibody response that is so misdirected and the specific homologous titer develops later. Thus, one can absolutely identify the infecting serotype only by recovering the organism and typing it with absorbed serotype-specific antiserums.

Diagnosis may also be established by isolating the organism from blood taken during the febrile phase or urine during early convalescence, or as indicated, from spinal fluid or aqueous humor from the anterior chamber of the eye. However, the procedure is time consuming, and sometimes months elapse before some fastidious strains can be seen in culture. The procedure is not recommended except in hospital laboratories whose staff are trained in handling cultures of leptospires. In fatal cases, a diagnosis may also be made on a retrospective basis by demonstrating the organism in sections of liver and kidney stained by the Levaditi procedure.

Leptospires, both living and dead, can be seen in urine and body fluids examined by darkfield microscopy. However, basing a diagnosis on visual detection of leptospires in such fluids is not recommended for the practitioner not familiar with the morphology and other properties of leptospires. Although the organism has a characteristic morphology and motility, many particles and artifacts in urine, spinal fluid, blood, serum, and the aqueous humor of the eye resemble leptospires. Most frequently, extrusions of protoplasm from erythrocytes and other cells are mistaken for leptospires. When these slender threads are affected by Brownian movement of small suspended particles, they closely resemble living leptospires to the untrained eye. Moreover, a fluid must contain at least 10^6 organisms per ml before they are readily detected. Since specimens of infectious urine or other body fluids seldom contain that many leptospires, a search for the organism in such specimens is of little diagnostic value, and leads to many false negative determinations.

Diagnostic services in the Northwest

The relatively small number of human cases of leptospirosis reported from the Northwest probably reflects a low level of physician interest and the lack of readily available diagnostic facilities. Most veterinary diagnostic laboratories routinely examine animal serums for antibodies against the common serotypes but few laboratories supporting the medical profession provide service in leptospiral serology. At the Rocky Mountain Laboratory, serums are examined for antibodies by the plate test with antigens prepared from 10 sterotypes—pomona, icterohaemorrhagiae, canicola, autumnalis, pyrogenes, ballum, grippotyphosa, hardjo, hebdomadis, and bataviae. Physicians interested in confirming the diagnosis of suspected cases of leptospirosis may submit serums to this laboratory, preferably through local health department laboratories. Tests will be performed on single convalescent serums, but acute- and convalescent-phase serums from patients are preferred.

Summary

Leptospirosis is an extremely protean disease and few signs and symptoms differentiate it from a variety of other infectious diseases. Although most physicians consider leptospirosis in cases of febrile jaundice characteristic of Weil's disease, few associate leptospires with the more common benign type characterized by aseptic meningitis.

Diagnosis of the disease should be based on isolating and identifying the causative leptospira, or on demonstrating a serologic response with a temporal relationship to the illness. Of these, the latter is the more appropriate approach, and can best be achieved by plate tests with formalin-killed cultures or microscopic agglutination test with live antigens. Preferably, a diagnosis should be based on a four-fold or greater rise in antibody titer between acute- and convalescent-phase serums, but a high titer in a single serum during early convalescence is suggestive of leptospirosis. •

REFERENCES

[1] Weil, A.: Ueber eine eigenthümliche, mit Miltztumor, Icterus and Nephritis einhergenhende, akute Infectionskranheit. Dautches Arch. f. klin. Med. 30:209-232, 1886. Cited by Woodward, T. Symposium on the Leptospiroses. Med Sci. Pub. No. 1, G.P.O., Washington, D. C., p. 53.
[2] Inada, R., Ido, Y., Hoki, R., Kaneko, R., and Ito, H.: The etiology, mode of infection, and specific therapy of Weil's disease. (Spirochaetosis Icterohaemorrhagica), J. Exp. Md., 23:377-402, 1916.
[3] Noguchi, H.: Spirochaeta Icterohaemorrhagiae in American wild rats and relation to the Japanese and European strains. J. Exp. Med., 25:755-763, 1917.
[4] Daniels, W. B., and Grennan, H. A.: Pretibial fever. J.A.M.A., 122:361-365, 1943.
[5] Gochenour, W. S., Jr., Smadel, J. E. Jackson, E. B., Evanse, L. B., and Yager, R. H.: Leptospiral etiology of Fort Bragg fever. Pub. Health Rep., 67:811-813, 1952.
[6] Meyer, K. F., Eddie, B., and Anderson-Stewart, B.: Canine, murine, and human leptospirosis in California. Proc. Soc. Exp. Biol. Med., 38:17-19, 1938.
[7] Jungherr, E.: Bovine leptospirosis. J.A.V.M.A., 105:276-282, 1944.
[8] Busch, L. A.: Leptospirosis 1965-1968. J. Inf. Dis. 121:458-460, 1970.
[9] Tjalma, R. A., and Galton, M. M.: Human leptospirosis in Iowa. Am. J. Trop. Med. Hyg., 14:387-396, 1965.
[10] Heath, C. W., Alexander, A. D., and Galton, M. M.: Leptospirosis in the United States. Analysis of 483 cases in man, 1949-1961. New Eng. J. Med., 273:857-864, 915-822, 1965.
[11] Shüffner, W., and Mochtar, A.: Versuche zur Aufteilung von Leptospiren-stämmen mit einleitenden Bemerkungen ueber den Verlauf von Agglutination und Lysis. Zbl. Bakt., 101:405-413, 1927. Abstract: Trop. Dis. Bull., 24:714-715, 1927.
[12] Galton, M. M., Menges, R. W., Shotts, E. B., Nahmias, A. J., and Heath, C. W., Jr.: Leptospirosis: Epidemiology, clinical manifestations in man and animals and methods in laboratory diagnosis. U.S. Dept. of Health, Education, and Welfare, Public Health Service Publ. No. 951. Wash., D. C., U.S. Govt. Print. Off., 70 pp, 1962.
[13] Stoenner, H. G., and Davis, E.: Further observations on leptospiral plate antigens. Am. J. Vet. Res., 28:259-266, 1967.

Correlation of coronary arteriograms with Master's test and treadmill test*

Walter J. Lewis, III, MD, Missoula, Montana, and William J. Wilson, MD, Omaha, Nebraska

SINCE WILLIAM HEBERDEN'S description of angina pectoris in 1772, the diagnosis of angina has been primarily made by clinical history or by post-mortem examination. Since coronary arteriography has moved from a research to a clinical tool in the 1960's, the extent of coronary artery disease can be accurately evaluated in the living patient. It is well recognized that only about half of all patients with ischemic heart disease will have ST changes following the relatively light exercise of a double Master's test. The purpose of this paper is to compare the relative effectiveness of the double Master's test and the more exhaustive treadmill test as *non-invasive* technics in the diagnosis of ischemic heart disease. A second purpose is to compare the results of these two exercise tests with the results of coronary arteriography, our most sophisticated *invasive* technic.

Method

Forty-two male patients who were clinically suspected to have coronary artery disease (CAD) were selected for coronary arteriography. Prior to coronary arteriography, all patients had a standard double Master's test as well as the graded maximal exercise treadmill test using the procedure of Bruce.[1] The Master's tests were all double Master's and run according to standard criteria,[2] recording leads V_4-V_6 plus AVF and II at cessation of exercise. The Bruce test consists of increasingly graded levels of exercise on a treadmill until exhaustion is reached. The patient is first permitted to walk on the treadmill to adjust his gait and lose fear of the machine. After a brief rest, he then walks through the levels (Stages—as shown in Table I) without stopping until maximum exercise tolerance is achieved. The patient is stopped only for exhaustion, severe chest pain or for the appearance of three consecutive premature ventricular contractions (PVC's). The patients were not allowed to stop because of the onset of chest pain but requested to continue until the pain was too severe to continue. During the Bruce test, the patient was monitored with lead V_5 while exercising and immediately upon stopping, complete recordings were made utilizing leads I, II, III and V_5 at cessation of exercise, and intervals of one, two, four, seven and ten minutes post-exercise. After exercise, if the patient requested it, nitroglycerin was administered for pain.

Coronary arteriography was performed using the Wilson catheters through a retrograde femoral approach. In all cases, both right and left coronary arteries were visualized. Filming was performed using biplane Schonander film changer at four films per second and the films were interpreted independently by two examiners for narrowing, obstruction, collaterals, etc. An area of 50 per cent or more narrowing in any artery was judged as significant CAD.

(A) Results of Coronary Angiograms

Thirty of the 42 patients had significant CAD by angiography. Of these, four had single vessel disease, seven had two vessel disease and 19 had three vessel disease.

*From the Department of Internal Medicine, Western Montana Clinic, Missoula, Montana, and the Department of Radiology, University of Nebraska College of Medicine, Omaha, Nebraska.

TABLE 1
BRUCE MULTISTAGE TREADMILL TEST

Stage	Min.	Speed (mph)	Grade %	"Feeling"
I	0-3	1.7	10	Slow Walk
II	3-6	2.5	12	Average walk
III	6-9	3.4	14	Fast walk
IV	9-12	4.2	16	Very fast walk
V	12-15	5.0	18	Jog-run
VI	15-18	5.5	20	Run
VII	18-21	6.0	22	Fast run

Subject goes until exhaustion. We will stop him for dizziness, 3 PVC's in a row, or severe chest pain.

Twelve patients had no evidence of obstruction in their coronary arteries and these patients are considered to have normal coronary arteriograms.

(B) Results of Master's Test—(See Table 2)

The standard double Master's test was completed by all patients who were not taking digitalis. Sixteen out of 26 (61%) patients with CAD developed ST changes of 1 mm. or more after the Master's test was performed and ten CAD patients (39%) had no significant ST depression. Two of the patients with CAD had the onset of chest pain during the test. No normal patients had pain. None of the patients had observed significant PVC's after the Master's test. One patient with normal coronary arteriograms had the onset of ST depression following the Master's test.

(C) Treadmill

Twenty-one out of 26 (81%) of the patients subjected to this exhaustive test had ST changes of 1 mm. or greater. In this series, there were five patients who had no ST depression on Master's test but had significant ST depression following treadmill exercise. Twenty-seven out of 30 (90%) of patients tested on the treadmill had the onset of pain before the procedure was terminated. Two patients were stopped because of the onset of three consecutive PVC's. No patient had ventricular fibrillation or circulatory collapse. The one normal patient with ST changes on his Master's test had no ST depression after his treadmill test. ST segments were not evaluated on four patients because they were taking digitalis.

(D) Exercise Tolerance in Patients with Coronary Artery Disease

The Bruce test is a graded maximum exercise test and the patient walks until exhaustion or the onset of severe chest pain. A person with less endurance than a track man cannot be expected to complete all the stages of exercise. The Master's test is a fixed effort test in which the patient does a standard number of trips based upon his weight, sex and age, and all patients were able to complete the required amount of exercise (See Table 3): Utilizing the Bruce test, normal

TABLE 2
COMPARISON OF ST DEPRESSION WITH THE MASTERS AND BRUCE TEST

	"Normals" with Coronary Angios	Colleagues $\bar{s}$ Coronary Angios	Coronary Artery Disease
ST Depression-Masters	1/12	—	16/26 (61%)
No ST Depression-Masters	11/12	—	10/26 (39%)
Pain-Masters	0/12	—	2/26 (8%)
ST Depression-Bruce	0/12	0/50	21/26 (81%)
No ST Depression-Bruce	12/12	50/50	5/26 (19%)
Pain-Bruce	0/12	0/50	27/30 (90%)
TIME-Bruce	10′ 00″	12′ 10″	4′ 42″

TABLE 3
EXERCISE TOLERANCE WITH THE BRUCE TEST

	TIME	HR I	HR max	I/max
Colleagues under 45	13′ 10″ (Stage V)	110	183	60%
Colleagues over 45	11′ 00″ (Stage IV)	109	166	65%
"Normals"—no CAD	8′ 17″ (Stage III)	122	159	77%
Coronary Artery Disease	4′ 42″ (Stage II)	120	129	93%

exercise tolerance for a male below age 45, as determined on 50 colleagues, is 12 minutes, 10 seconds—that is, they should complete the Fourth Stage and possibly enter the Fifth Stage. Their heart rates in Stage I of exercise average 109 and the maximum heart rate they achieve averages 176. The ratio of the heart rate of Stage I to the maximum heart rate (I/Max.) is 62 per cent.

The average patient with CAD can walk only four minutes, 42 seconds, (half-way through Stage II) before having to stop exercise, usually because of pain. Average heart rate of Stage I is 120 and the maximum heart rate these patients were able to achieve is 129. This gives them a I/Max. of 93 per cent which is significantly different from that of our normals. Not only is the normal subject able to walk further, he is able to increase his heart rate more than the patient with CAD, and he does not get chest pain during exercise.

(E) Correlation of the Number of Arteries Involved and Exercise Results

Sixteen out of 26 (61%) of the patients with CAD had ST depression on Master's test, while 21 out of 26 (81%) had ST depression by treadmill testing. Not all patients with CAD get ST depression. From Table 4, one can see that even though triple artery disease is present, some patients do not get ST depression following the Master's test or the treadmill. Clinically, it was noted that the two patients with triple artery disease who did not get ST depression following treadmill exercise had evidence of a previous myocardial infarction on their resting EKG. The majority of ST changes following treadmill exercise are seen in lead V_5 and the second highest number are in lead II. It was our general impression that there was no correlation between the anatomic location of the atherosclerotic plaque and the EKG lead in which ST changes did appear.

(F) Discussion of Results

Although the Bruce test requires a treadmill, a monitor, a defibrillator and the presence of a physician, it is technically no more difficult to perform than a Master's test. The higher percentage of positive yields is felt to be well worth the physician's time and effort. An ST response of 1 mm. after a Master's test is frequently 3-4 mm. following a treadmill test, and one is therefore more confident in calling slight ST response following Master's test normal or abnormal. With the increased emphasis on early detection of subclinical or non-overt disease, one feels more confident using a treadmill test to tell a patient that he is truly normal or abnormal after a treadmill test. Another advantage with the treadmill test is that the patient is monitored during the entire exercise period for arrhythmias, and this is not possible during a Master's step test. The Bruce test is a multistage test in which the patient is subjected to increasing graded levels of exercise until exhaustion or chest pain is reached. Therefore, it is a quantitative evaluation of exercise tolerance, as well as a qualitative evaluation of ST response. Stage I requires an energy expenditure of 5 cal./min. and is equivalent to the energy expended in ordinary everyday activities such as driving a car, walking, doing housework, etc. The double Master's step test requires an energy expenditure of about 8 cal./min., which is slightly less than the energy expenditure of Stage II. That is, the maximum energy expenditure with the Master's test is equivalent to the energy expenditure at the lower levels of treadmill testing. In the Bruce test, the patient keeps walking and possibly could reach levels of 17-20 ca./min. expenditure before exhaustion is achieved. The average heart rate in Stage I of both

normals and diseased is 100-120. This is frequently the maximum heart rate achieved during a Master's test. With the Bruce test, the heart rate increases with each stage of exercise and one is able to determine the maximum heart rate that the individual is able to achieve. The simple ratio of heart rate at ordinary levels of exercise (Stage I) to the maximum heart rate (Max.) gives one an objective evaluation of cardiac reserve (I/Max.). In a normal subject, this averages 62 ± seven per cent.

A person with coronary artery disease cannot raise his heart rate to high levels without the onset of chest pain. Therefore, his I/Max. will be higher than normal. With a moderate degree of impairment, I/Max. will equal 80-85 per cent. With extreme exercise intolerance, a patient with coronary artery disease can only complete Stage I of exercise. In this circumstance, his I/Max. would be 100 per cent.

Exercise tolerance is also diminished in patients with coronary artery disease. Although a very rare patient with coronary artery disease is able to walk into the fourth stage of exercise, it is an exceptional patient that can walk to the third stage, and the average patient can only walk into the second stage of exercise. With severe impairment, a patient may have difficulty completing the first stage of exercise tolerance.

(G) Discussion of Literature

The Master's test will produce ST depression of 1 mm. or more in approximately 50 per cent of patients. This has been reported in several papers, among them by Mason (1959),[3] Sheffield et al. (1965)[4] and Friedberg et al. (1962).[5] Most, Kemp and Gorlin[6] found 58 per cent of patients with positive coronary arteriograms had post-exercise EKG response defined as 1 mm. or more of flat ST depression. Nevertheless, 58 per cent of positives means 42 per cent have false negative response.

Between 80 and 90 per cent of patients with angina pectoris will have ischemic ST segments following exercise at maximum or near maximum severity according to Sheffield et al. and Mason and Kelar (1966).[7] Bruce[9] has stated that approximately 80 per cent of all patients with angina will have positive ST response using the maximal treadmill exercise test. However, only Gorlin[6] has attempted to correlate the degree of coronary atherosclerosis by coronary arteriograms and the results of exercise testing. Using coronary arteriograms, our figure of 81 per cent is in good agreement with previously reported clinical figures. However, in the group of patients reported in this paper, three patients who did not have ST depression following maximal exercise had had a previously documented myocardial infarction. This would mean that 24 of the 26 patients or 92 per cent either had positive ST depression or a positive history of coronary artery disease.

One wonders about the possibility of obtaining false positive ST segments—that is, 1 mm. ST depression in the absence of coronary artery disease. Sheffield, Lester and Reeves (1967)[8] have studied the response of more than 200 normal volunteers past age 40 during maximal exercise. They concluded the incidence of depression of ST segment of 1 mm. or more in standard leads made 30 seconds or later following termination of exercise was approximately one per cent. These results are similar to those reported by Doan et al. (1965.[1]) In this series of 50 normal colleagues, no ST depression was noted following maximal exercise.

The flat or sagging ST depression following the effort must be interpreted as abnormal response. However, it does not necessarily imply the existence of coronary artery disease. It does indicate a transitory metabolic abnormality of the myocardium and is most frequently associated with (1) ischemia,

TABLE 4
CORRELATION OF NUMBER OF DISEASED ARTERIES WITH EXERCISE RESULTS

	ST Depression Masters	ST Depression Treadmill	Chest Pain Treadmill
Single vessel disease	2/4	3/4	2/4
Two vessel disease	3/6	4/6	6/7
Three vessel disease	11/16	14/16	19/19
TOTALS	16/26	21/26	27/30

(2) hypokalemia or the electrolyte abnormality, (3) hyperventilation syndrome, (4) digitalis administration, (5) neurocirculatory asthenia.

Summary

Data have been presented revealing that a treadmill test with increasingly graded levels of exercise will reveal ST changes in 81 per cent of patients with coronary artery disease, while only 61 per cent will reveal ST changes with double Master's test. The treadmill test also enables one to test cardiac reserve as it is a maximal exertion test while the sub-maximal Master's test can test functions only at exercise levels slightly in excess of daily activity. Discussion has revealed that the patient with coronary artery disease is frequently quite limited in exercise tolerance as compared to the normal patient. By the use of the treadmill test, one can more accurately diagnose coronary artery disease from a qualitative standpoint and from a quantitative standpoint maximum exercise tolerance can be accurately assessed. •

REFERENCES

1 Doan, A. E., Peterson, D. R., Blackmon, J. R., and Bruce, R. A.: Myocardial ischemia after maximal exercise in healthy men: A method for detecting potential coronary heart disease? Am. Heart J., 69:11, 1965.

2 Master, A. M., Jaffe, H. L.: The electrocardiographic changes after exercise in angina pectoris, J. Mt. Sinai Hosp., 7:629, 1941.

3 Mason, R. E.: The Master test in patients with coronary heart disease and in normal subjects, Heart Bull., 8:67, 1959.

4 Sheffield, L. T., Holt, J. H., and Reeves, T. J.: Exercise graded by heart rate in electrocardiographic testing for angina pectoris, Circulation, 32:622, 1965.

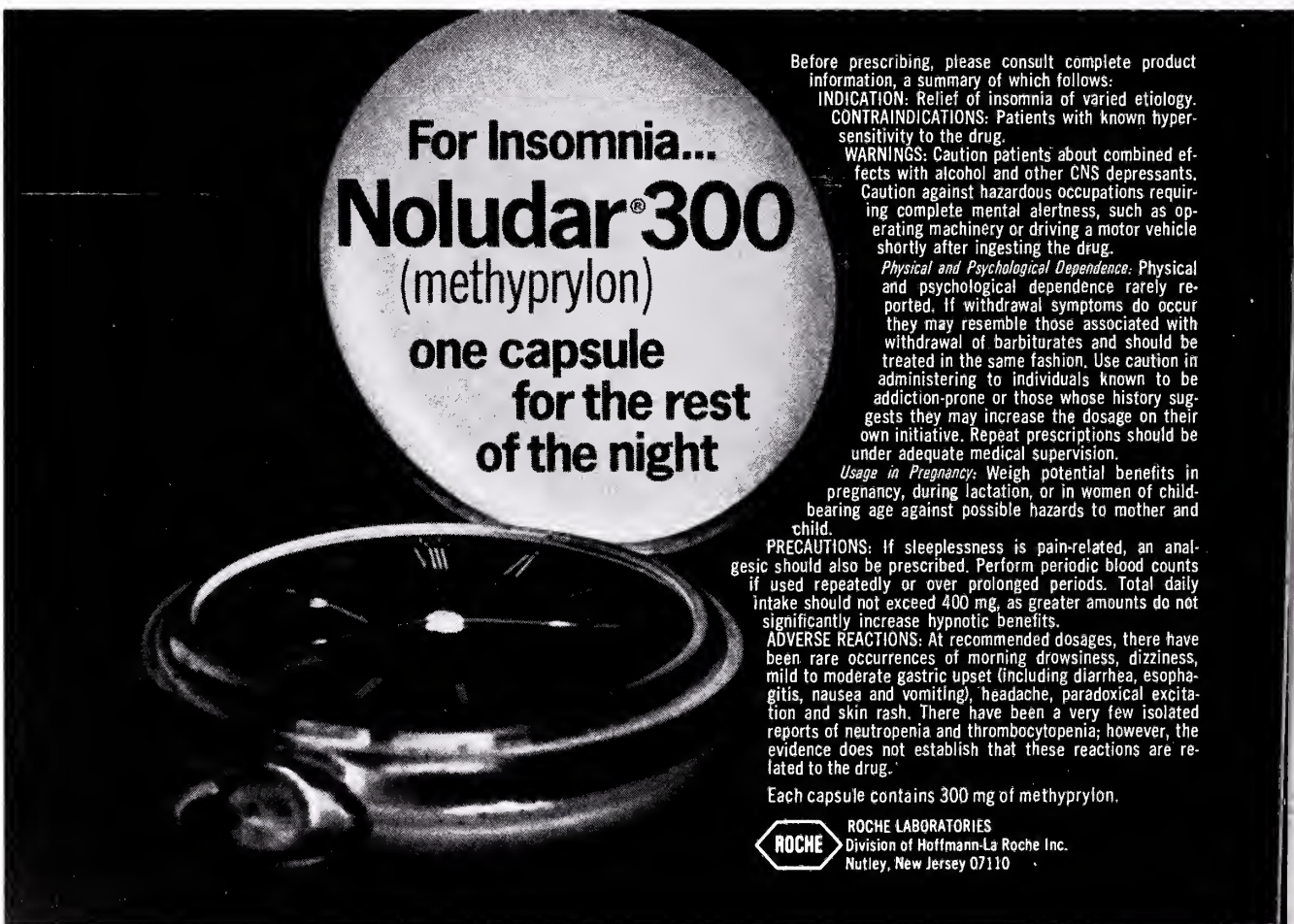
5 Friedberg, C. K., et al.: The two-step exercise electrocardiogram: A double blind evaluation of its use in the diagnosis of angina pectoris, Circulation, 26:1254, 1962.

6 Most, A. S., Kemp, H. G., and Gorlin, R.: Postexercise electrocardiography in patients with arteriographically documented coronary artery disease, Ann. Intern. Med., 71:1043-9 (December), 1969.

7 Mason, R. E., and Kelar, I.: A new system of multiple-lead exercise electrocardiography, Am. Heart J., 71:196, 1966.

8 Scheffield, L. T., Lester, F. M., and Reeves, T. J.: Electrocardiographic responses of older normal men to maximal exercise (unpublished observations), 1967.

9 Bruce, R. A., Personal communication.


For Insomnia...
Noludar®300
(methyprylon)
one capsule
for the rest
of the night
Before prescribing, please consult complete product information, a summary of which follows:
INDICATION: Relief of insomnia of varied etiology.
CONTRAINDICATIONS: Patients with known hypersensitivity to the drug.
WARNINGS: Caution patients about combined effects with alcohol and other CNS depressants. Caution against hazardous occupations requiring complete mental alertness, such as operating machinery or driving a motor vehicle shortly after ingesting the drug.
Physical and Psychological Dependence: Physical and psychological dependence rarely reported. If withdrawal symptoms do occur they may resemble those associated with withdrawal of barbiturates and should be treated in the same fashion. Use caution in administering to individuals known to be addiction-prone or those whose history suggests they may increase the dosage on their own initiative. Repeat prescriptions should be under adequate medical supervision.
Usage in Pregnancy: Weigh potential benefits in pregnancy, during lactation, or in women of childbearing age against possible hazards to mother and child.
PRECAUTIONS: If sleeplessness is pain-related, an analgesic should also be prescribed. Perform periodic blood counts if used repeatedly or over prolonged periods. Total daily intake should not exceed 400 mg, as greater amounts do not significantly increase hypnotic benefits.
ADVERSE REACTIONS: At recommended dosages, there have been rare occurrences of morning drowsiness, dizziness, mild to moderate gastric upset (including diarrhea, esophagitis, nausea and vomiting), headache, paradoxical excitation and skin rash. There have been a very few isolated reports of neutropenia and thrombocytopenia; however, the evidence does not establish that these reactions are related to the drug.
Each capsule contains 300 mg of methyprylon.
ROCHE
ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

The girth control pill

Tepanil® Ten-tab®

(continuous release form)

(diethylpropion hydrochloride, N.F.)

works on the appetite not on the 'nerves'

When girth gets out of control, TEPANIL can provide sound support for the weight control program you recommend. TEPANIL reduces the appetite—patients enjoy food but eat less. Weight loss is significant—gradual—yet there is a relatively low incidence of CNS stimulation.

Contraindications: Concurrently with MAO inhibitors, in patients hypersensitive to this drug; in emotionally unstable patients susceptible to drug abuse.

Warning: Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

Adverse Reactions: Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence. As is characteristic of sympathomimetic agents, it may occasionally cause *CNS effects* such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported. *Sympathomimetic cardiovascular effects* reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others. *Allergic phenomena* reported include such conditions as rash, urticaria, ecchymosis, and erythema. *Gastraintestinal effects* such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosage forms: TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL: One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

T-103 / 2/71 / U.S. PATENT NO. 3,001,910

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Painful night leg cramps...

unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

One thing patients can sleep without, particularly patients with chronic disease conditions such as arthritis, diabetes or PVD, is painful night leg cramps. Although seldom the presenting complaint, night leg cramps can tie your patients up in painful knots. Now, just one tablet of QUINAMM at bedtime can usually bring an end to shattered sleep and needless suffering. Your patients will sleep restfully—gratefully—with QUINAMM, specific therapy to prevent painful night leg cramps.

Prescribing Information—Compasition: Each white, beveled, compressed toblet contoins: Quinine sulfote, 260 mg., Aminophylline, 195 mg. **Indicatians:** For the prevention and treatment of nocturnal ond recumbency leg muscle cromps, including those ossocioted with arthritis, diobetes, voricose veins, thrombophlebitis, orteriosclerosis ond static foot deformities. **Cantraindicatians:** QUINAMM is controindicoted in pregnoncy becouse of its quinine content. **Precautians/Adverse Reactians:** Aminophylline moy produce intestinal cramps in some instances, ond quinine may produce symptoms of cinchonism, such os tinnitus, dizziness, ond gastrointestinol disturbance. Discontinue use if ringing in the eors, deafness, skin rash, or visuol disturbances occur. **Dasage:** One tablet upon retiring. Where necessory, dosage may be increosed to one tablet following the evening meal ond one toblet upon retiring. **Supplied:** Bottles of 100 and 500 toblets.

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Quinamm™ Specific therapy for night leg cramps
(quinine sulfate 260 mg., aminophylline 195 mg.)

Dermatomyositis and polymyositis*

W. A. Reynolds, MD, Missoula, Montana

Although polymyositis and particularly dermatomyositis are rarely encountered in clinical practice, they are perhaps more common than is generally realized. The three cases described here are of enough interest to warrant discussion and review of the literature.

THERE ARE SEVERAL types of polymyositis including dermatomyositis, all of which are characterized by muscular weakness involving particularly the proximal limb and girdle muscles. In the more severe and chronic cases, involvement includes dysphagia and weakness of neck, facial and distal extremity muscles. There may be some associated features of rheumatoid arthritis, particularly arthralgia and scleroderma. The course of the disease may be rapidly progressive and terminate fatally in a period of months or may smolder along for years with spontaneous remissions and exacerbations. Polymyositis affects persons of all ages and either sex, but is more commonly seen in middle-aged females.[1,2,3,4]

CASE 1

A 29-year-old mother of two children was seen here in consultation in November, 1963, because of profound weakness and skin eruption. She had first noted a red pruritic eruption on the fingers and neck in July, 1963. The eruption became worse in September. She consulted a physician and was started on Triamcinolone in dosage of 4 mg. t.i.d. The eruption persisted. She otherwise felt well until October when she noted some weakness and a feeling of fatigue. Following three injections of ACTH in October, she noted swelling in both arms. During this period, she continued her steroid medication and developed signs of hyper-cortisonism. Approximately three weeks before being seen here, steroid was tapered off rapidly and she had taken no steroid for the week prior to coming here. Profound weakness developed during this period plus an increase in edema of the arms. She had been hospitalized while the steroid was tapered and it was found that the serum sodium was 128 mEq./L, the chloride 72 mEq./L and the potassium 5.1 mEq./L. In addition to weakness of the extremities and the neck muscles, she had noted difficulty with swallowing — frequently choking on food.

Physical examination revealed a heliotrope type of eruption about the eyes with peri-orbital puffiness. There was an erythematous violaceous flush to the forehead, face, neck and chest. Similar erythematous flush was noted over the dorsal aspect of the finger joints and just proximal to the fingernails. A similar eruption was present on elbows and knees. There was pitting edema of both arms. There was profound weakness of neck muscles. Weakness of the proximal muscle groups of upper and lower extremities was profound. The remainder of the examination was within normal limits with exception of a vaginitis characterized by a heavy yellow discharge. Neurological examination, except for muscle weakness, was within normal limits.

Laboratory studies included the following: Leukocyte count, 15,200 per cubic millimeter with 84 per cent neutrophiles. Hemoglobin, 11.1 gm.%. Sedimentation rate, 25 mm. per hour, BUN 17, CO_2 content 27 mEq./L, chloride 86 mEq./L., sodium 128 mEq./L. and patassium 4.3 mEq./L. S-GOT, 98 units (normal 8-40 units). Urinalysis revealed a trace of albumin and microscopically the urine was loaded with pus cells. A culture grew out coliform aerobacter group. Urine specific gravity varied from 1.008 to 1.016 on several collections. L.E. clot test was negative. Electrocardiogram revealed only sinus tachycardia. Twenty-four urine collection revealed total sodium of 8 mEq./L. and 13.5 mEq./L. of potassium with a total volume in 24 hours of 1050 cc.

The patient was hospitalized for studies and evaluation. Biopsy of the quadriceps muscle was normal microscopically. The patient was placed on tetracycline for treatment of the urinary infection. She was placed on prednisone, 10 mg. twice daily.

*From the Department of Internal Medicine, Western Montana Clinic, Missoula, Montana.

Within 48 hours the serum electrolytes had returned to normal with the sodium 140 mEq./L. and chloride 97 mEq./L. Four days after institution of steroid therapy, the S-GOT was 18 units. At this time prednisone was reduced to 5 mg. twice daily. There was slight increase in muscle strength but she continued to be very weak, requiring help to get in and out of bed, and continued to have difficulty with swallowing of meat and similar food.

Diagnosis of dermatomyositis was made on the basis of the clinical picture. The patient was unable to remain in the hospital for more than four days so she returned to the referring physician on a steroid program consisting of 20 mg. of prednisone every other day in one dose, with recommendation that further steroid treatment be gauged on the basis of the serum transaminase and clinical response. Tetracycline was prescribed for the urinary infection.

The patient was not seen here again but was reported to have expired approximately five weeks after discharge. The cause of the terminal episode was unknown. Her weakness had remained profound to her death.

Comment: It was felt that despite the negative muscle biopsy, the cutaneous signs were absolutely characteristic and the distribution of muscle weakness was typical of dermatomyositis. Further, it was felt that the steroid which had been started as nonspecific therapy for the skin eruption had masked the development of myositis so that weakness did not become apparent until the steroid was tapered off. The low serum sodium and chloride which were noted prior to her referral here and on admission promptly returned to normal with reinstitution of steroid. The question of a salt-losing nephritis was raised in view of the urinary infection. However, 24-hour urine studies of salt excretion ruled out this possibility. With reinstitution of steroid therapy, there was prompt return to normal of the serum transaminase but little clinical improvement in muscle weakness.

CASE 2

A 13-year-old boy was first seen here on December 26, 1963, because of a persistent skin eruption, malaise and fatigue. There had been increased ease of fatigue noted beginning six months previously and this had become more prominent for the two months prior to examination here. One month before coming he developed an erythematous eruption of the ears followed by a pruritic red rash over the elbows followed by the knees and a similar eruption over the knuckles and proximal interphalangeal joints of the hands. There was no significant history of exposure or allergic reaction to medication preceding the symptoms. The only family history of rheumatic disease was a maternal great aunt who had rheumatoid arthritis. The remainder of the past history was not remarkable.

Physical examination revealed puffiness about the eyes with typical heliotrope eruption. There was a red, slightly raised, plaque-like eruption over knees and elbows. There was a red violaceous discoloration of knuckles and proximal interphalangeal joints of the hands. The ears were slightly erythematous and scaly; there was no weeping. Funduscopic examination revealed no abnormalities including the absence of cytoid bodies. There was minimal tenderness of the shoulder and arm muscles and some questionable minimal weakness of the deltoids bilaterally and of hip flexor muscles bilaterally. Otherwise, muscle strength was within normal limits.

Serum transaminase (S-GOT) was 65 units, ASO titer was 50 Todd units. Four days later, repeat S-GOT was 156 units. The urine electrophoresis for myoglobin was negative. A lupus erythematosus preparation was negative. Urinalysis was within normal limits. Hemoglobin was 14.4 gm.%, white count 5,800 with 5 per cent eosinophiles, 7 per cent monocytes, 43 per cent lymphocytes and 45 per cent polys. Sedimentation rate was 8 mm. per hour. The platelets were adequate. Blood serology was non-reactive. A latex flocculation was negative. Chest x-ray was within normal limits and there was no calicification present in either shoulder. Electrocardiogram was within normal limits.

Biopsy of the left trapezius muscle was performed and revealed two definite foci of perivascular lymphocytic infiltration. There was inconspicuous muscle degeneration with slight loss of cross striations. Biopsy was felt to be compatible with a childhood type dermatomyositis.

The patient was started on oral steroid therapy and on a dosage of 10 mg. t.i.d., the S-GOT fell to 48 units, and two days later was 34 units. He was put on a maintenance dosage of 5 mg. q.i.d. On January 18, the S-GOT was 37 units. On January 25, it was 62 units. During this period he had felt well, was attending school, and there was a definite blanching in the rash and a decrease of periorbital edema. There was no demonstrable weakness on testing on January 25. At this time he was placed on 40 mg. of prednisone in one dose every other day with breakfast.

The patient was continued on this program and seen at monthly intervals. He had no further exacerbation of weakness or muscle tenderness. The rash fluctuated but gradually diminished. The heliotrope persisted through September of 1964 but was definitely fading, as were the erythematous plaques on his hands and elbows. This was examined monthly at which time an S-GOT was taken. Values from February, 1964, through December, 1964, fluctuated btween 28 and 48 units. This dosage was gradually reduced and by September of 1964 he was taking 25 mg. prednisone every other day. This was reduced gradually to 5 mg. every other day by March of 1965 and all steroid was discontinued in April of 1965.

He was seen in June of 1965, at which time there was no skin lesion and no evidence of weakness. Since that time he has been in excellent health. He was last examined in April, 1970, at

which time he had excellent growth and development. He was 6 feet, 2 inches tall and weighed 180 pounds. Strength of all the muscles was excellent and his skin showed no residual of dematomyositis.

Comment: It was felt that this case represented a typical childhood type dermatomyositis with the skin changes appearing first and finally early evidence of myositis. A prompt remission which appears to be permanent ensued with steroid therapy.

CASE 3

A 68-year-old woman who was first seen June 22, 1970, with multiple complaints. She complained chiefly of weakness of the arms and lower extremities for one and a half years. There was a gradual loss of strength progressing to the point that she could climb stairs only with support of her hands on a handrail. Weakness in the upper extremities made it difficult for her to comb her hair. She had fallen several times and was unable to get up by herself. She complained of pain in her left shoulder.

She had been under the care of a gynecologist who had treated her with three short courses of steroid. There was some temporary improvement. Other medications included a thyroid preparation which she had taken for several years, two calcium tablets daily and Vitamin C. She used very little alcohol and did not smoke. She had been in excellent health until her present illness except for considerable distress associated with stress incontinence and descensus of the uterus. Review of systems revealed the following complaints: For some months she had had difficulty swallowing. She felt as though food seemed to stick in the right side of the throat. She coughed frequently for no appearent reason and often coughed up small amounts of food. She had had no dyspnea, no hemoptysis and no angina. There were no other gastrointestinal complaints. There was no history of inflammatory arthritis.

The family history was not remarkable. Her mother had died at age 90, and her father had died of a heart attack. Five siblings were living and well.

Physical Examination: Blood pressure was 140/66, pulse 70/min. and regular, height 5 feet, 1 inch (3½ inches less than her maximum height), and her weight was 90 pounds. There were no skin lesions nor evidence of scleroderma of the extremities. The hair on the scalp was diffusely thinned. There was dorsal kyphosis of the spine. Examination of the heart and lungs was within normal limits. The abdomen was flabby and doughy, making it difficult to examine. Despite repeated attempts, the spleen was not palpable. The liver was not enlarged, nor were there any masses. There was a moderate degree of descensus uteri and a cystocele was present. The uterus was not enlarged. The pedal pulses were intact. The deep tendon reflexes were equal and active. There was weakness of both flexors and extensors of the arms and forearms, and she was unable to raise her arms above the horizontal. There was weakness of the deltoid muscles bilaterally. Muscle atrophy of the thenar eminences was present bilaterally.

She was seen in consultation by an associate who was unable to palpate the spleen, but noted increased dullness in Traube's space, suggesting splenic enlargement.

Proctoscopic examination was negative with the exception of a small polyp at 13 cm. from the anus which measured approximately 4 mm. wide at the base and 8 mm. in length. It was removed surgically with the base being fulgurated. Pathologic examination proved the polyp to be benign.

Laboratory studies were as follows: White count 5,600 with 50 per cent polymorphonuclears, 3 per cent stabs, 43 per cent lymphocytes, 4 per cent monocytes. Sedimentation rate was 11 mm. per hour (Westergren). Hematocrit was 43 per cent. The blood smear was reviewed and revealed only scattered atypical lymphocytes; otherwise, the cells were felt to be normal. The platelets were adequate. Other studies included a cholesterol of 172 mg.%, calcium 10.0 mg.%, phosphorus 3.1 mg.%, total bilirubin .6 mg.%, albumin 3.6 mg.%, total protein 6.7 mg.%, uric acid 6.0 mg.%, blood urea nitrogen 15.5 mg.%, fasting blood sugar 104 mg.%, serum triglyceride 182 mg.%, alkaline phosphatase 9.8 mg.% (upper normal 17 mg.%), and S-GOT 60 units (upper normal 40 units). Antinuclear antibody titer was less than 1:10. Serum electrophoresis was within normal limits. Urinalysis was as follows: Specific gravity 1.018, pH 5.0, albumin and sugar negative; microscopically, there were a few epithelial cells, 8-10 leukocytes and a few bacteria.

X-rays studies included a normal colon x-ray. An IVP revealed only the presence of a cystocele. There was some retention of urine following voiding. There was a mild bilateral nephrocalcinosis. The spleen appeared to be enlarged. The liver size was thought to be normal. The chest x-ray was normal. The cervical spine x-ray revealed some narrowing of the disc spaces between C5, C6 and C7. The left shoulder x-ray was normal with the exception of the presence of osteoporosis. Thoracic spine x-ray and lumbar x-ray revealed only a mild degree of scoliosis and mild degenerative arthritic changes in the lower thoracic and upper lumbar area. There was generalized oseoporosis. An upper GI study revealed "sluggish peristalsis of the esophagus with some barium remaining in the esophagus during the time the patient remained in the prone position." There was esophageal reflux with Valsalva effort but no hiatus hernia. No other abnormalities were noted with the exception of splenomegaly.

Diagnosis of polymyositis, osteoporosis and descensus uteri were made. The etiology of the splenomegaly was indeterminate. The patient was started on prednisone, 10 mg. four times daily, and she was continued on a calcium supplement four times daily. Seven days after initiating steroid therapy, the S-GOT was repeated using another

method. The value was 22 units with an upper limit of normal at 12 units. Treatment remained unchanged. After eight weeks on prednisone, there was great improvement. She could again brush her hair and elevate the arms. Use of hands and fingers was improved. Climbing stairs was easier and she had ceased falling. Muscle weakness by gross testing was only slightly improved. There was a ten-pound weight gain. The transaminase (S-GOT) was normal at 24 units (upper normal 40). She is currently on the same dosage of prednisone.

Comment: Polymyositis in this case appears to be a primary process. However, the possibility of underlying malignancy cannot be entirely ruled out. Most disturbing is the unexplained splenomegaly. The abnormalities on esophagram were thought to be related to myositis and not to scleroderma in the absence of other evidence of scleroderma. When clinical improvement reaches a plateau, the use of every-other day steroid therapy will be considered.

Discussion

Pearson[1] reported his experience with 48 cases of polymyositis and has divided the cases into six types. Type I or "typical polymyositis" was seen most commonly and occurred exclusively in adults. Gradual progression of pelvic girdle and thigh weakness with subsequent involvement of the shoulder girdle muscles was characteristic. The typical rash of dermatomyositis was absent. Type II or "typical dermatomyositis" was distinguished from "childhood type" dermatomyositis (Type IV). Both were described as having the characteristic rash including a red scaly eruption over the extensor surfaces of the joints of the fingers, elbows, knees and medial malleoli, peri-orbital edema and the dusky lilac coloration of the upper eyelids (heliotrope eruption). The skin manifestations often preceded the muscular weakness, tenderness and aching. Muscular weakness was predominantly proximal but was seen to progress to distal sites and to muscles of deglutition, phonation and respiration. The chief difference between the childhood and adult types were these: (1) Pathologically, the childhood type involved primarily vascular and connective tissue with the prominent vasculitis resulting in secondary muscle fiber changes while the adult variety was a primary myositis; (2) development of contractures in a majority of children; and (3) abdominal pain, ulceration and perforation of the gastrointestinal tract in some children.

Pearson's Type III was classified as typical dermatomyositis or occasionally polymyositis without skin involvement associated with a malignancy. The clinical picture may be identical to dermatomyositis but malignancy, often occult, underlies the condition. Nearly all of these cases occurred in patients over the age of 40. These cases responded less well to steroids but Pearson and others have noted remission after surgical cure of the malignancy.[1] The common sites of origin of such malignancies associated with dermatomyositis in descending order of frequency have been the lungs, female pelvic organs, prostate, female breast, stomach, esophagus and colon. Muscular weakness often has been more prominent than the cutaneous signs in this type. It has been said that dermatomyositis occurring after the age of 40 is more than 50 per cent likely to be associated with a malignancy.[5] Winkleman et al.[3] reviewing 289 cases of dermatomyositis-polymyositis found only 16 cases of malignancy and feel that exhaustive studies for occult malignancy in polymyositis is not indicated.

Two of Pearson's cases were classified as acute myolysis (Type V). These cases were very similar to idiopathic paroxysmal myoglobinuria. Two other cases were associated with Sjogren's syndrome (Type VI).[1] Neldner et al. emphasized another significant group with a poor prognosis—that of scleroderma tomyositis.[6]

Diagnosis of dermatomyositis should always be suggested by the typical heliotrope rash, peri-orbital edema and an erythematous eruption over the extensor surfaces of joints. Tenderness and weakness of proximal muscles are usually present. Muscle biopsy may confirm the presence of myositis (in adult type) or vasculitis (childhood type) particularly if the muscle biopsy site is chosen on the basis of clinical involvement. However, a single muscle biopsy is frequently normal or non-diagnostic and should not be considered as evidence against the diagnosis of dermatomyositis. Diagnosis should be based on the total clinical picture. The most helpful laboratory tests are the serum transaminase determinations (S-GOT and S-GPT). With an active myositis, the serum transaminases

are elevated. Electromyography, if available, is helpful but not essential to make the diagnois.[1,2,3]

Treatment

Treatment of dermatomyositis or myositis depends on first ruling out underlying malignancy, particularly in adults. Steroids generally are effective in suppressing activity of the disease and should be used in high enough dosage to reduce serum enzyme transaminase to normal levels. Onset of return of muscle strength may lag four to six weeks after return of transaminase levels to normal. Because of the steroid-induced myopathy, particularly seen with triamcinalone and devamethasone, the use of prednisone has been recommended as one drug of choice. Steroid-induced myopathy may occur, however, with administration of any gluco-corticoid and can be seen in patients with Cushing's disease. This steroid-induced myopathy differs from that of polymyositis in its involvement of distal musculature as well as proximal, absence of the skin eruption of dermatomyositis, absence of muscle tenderness and the minimal histologic changes and absence of serum transaminase elevation.[1] Other considerations of treatment include limitation of activity and bed rest in the acute stage. Physical therapy is helpful when contractures begin to appear.[1]

In 1963, Harter, Reddy and Thorne[7] reported findings which have decreased some of the hazards of steroid therapy in dermatomyositis and other diseases requiring prolonged steroid therapy. In essence, it was reported that the required daily suppressive dose of steroids is determined and then the 48 hour requirement is given in one dose with breakfast every other day. It has been shown that this in most cases gives good therapeutic effect while allowing the pituitary-adrenal axis to remain functioning rather than totally suppressed during the second 24 hour period after each dose.

Prognosis

Prognosis has been greatly changed by steroid therapy. Mortality rates up to 50 per cent have been reported in the presteroid era. Modern experience with dermatomyositis and typical polymyositis without associated malignancy would suggest a much better outlook now.[1,3] Children in the past have seldom escaped crippling or incapacitating muscular damage but the effect of long term steroid therapy has considerably modified this dismal picture.[1] Winkleman et al.[3] reported an extensive experience with steroid therapy. High dose therapy (50 mg. or more cortisone or equivalent daily) produced decreased morbidity and earlier remission in contrast to poor results with low dose regimens. Spontaneous remissions in 48 of 289 patients studied were found. Their study demonstrated no significant differences between dermatomyositis and polymyositis in patient population, duration, course, outcome or response to treatment. Others feel the prognosis is better with minimal cutaneous involvement.[4] Rapidly progressive and widespread disease had the worst prognosis. Cardiovascular and pulmonary complications were frequent causes of death.[3] McIlvanie[8] reported on excellent responses to use of chlorambucil in two patients with advanced myopathy.

Summary

Two cases of dermatomyositis (one fatal) and one case of polymyositis have been described. Recent literature of polymyositis-dermatomyositis has been reviewed with particular stress on the efficacy of steroid therapy. •

REFERENCES

[1] Pearson, C. M.: Annals Int. Med., 59:839, 1963.
[2] Barwick, D. D., and Walton, J. N.: Amer. J. Med., 35:646-660, 1963.
[3] Winkleman, R. K., Mulder, D. W., Lambert, E. H., Howard, F. M., Jr., and Diessner, G. R.: Mayo Clinic Proc., 43:545-556, 1968.
[4] Engleman, R. P., and Shearn, M. A.: Ann. Int. Med., 66:199-220, 1967.
[5] Pearson, C. M.: Bulletin on Rheumatic Diseases, 12:269, 1962.
[6] Neldner, K. H., Winkleman, R. K., and Perry, H. O.: Arch. Derm., 86:305-309, 1962.
[7] Harter, J. G., Reddy, W. J., and Thorne, G. W.: N. Eng. J. Med., 269:591, 1963.
[8] McIlvanie, S. K.: The use of chlorambucil in the management of advanced polymyositis. American College of Physicians Course, Nov. 16, 1968. Seattle, Wash.

Magic, science, and head circumference*

George H. Barmeyer, MD, Missoula, Montana

"Science is founded on the conviction that experience, effort, and reason are valid; magic on the belief that hope cannot fail nor desire deceive. The theories of knowledge are dictated by logic, those of magic by the association of ideas under the influence of desire."—Bronislaw Malinowski: Magic, Science, and Religion—1925

In 1965, Gunnar Stickler[1] reported that children with head circumferences below the third percentile are mentally deficient. He also found that children with growth failure, but of normal intelligence, have head sizes in the normal range. These important observations by his Mayo group, though long suspected, had apparently escaped previous documentation.[2]

Not long thereafter, Gerhard Nellhaus[3] combined the results of international studies on head sizes into a convenient chart which defines clearly the normal ranges of head circumference. It was through this happy coinciding of Stickler's and Nellhaus' papers that there has resulted a potent new tool for the pediatrician—one that requires no sophisticated equipment and yet is unlikely to be assailed by observer error. (Although Nellhaus considers two standard deviations from the mean to be the second percentile, rather than the third, we can assume that both men were concerned with so-called "95 per cent limits.")

*From the Western Montana Clinic, Missoula, Montana. Reprint requests to 501 West Broadway, Missoula, Montana 59801. (Part o fthis work was done while the author was Senior Fellow, Adolescent Clinic, University of Washington, 1967-1968.)

What Stickler meant, of course, was that the abnormally small head houses an abnormally small brain—one that is incapable of average intellectual function—and he was simply using the skull circumference as an easy way to identify the microcephalic. Surely determination of skull volume would have been a more reliable, but much less practical, measure of brain size.

Generally speaking, though, it is not possible to correlate brain size with intellectual development. While a number of eminent men have had brains of exceptional size, others have been equally successful with quite small brains. Anatole France's brain, for example, displaced only 1200 cubic centimeters, whereas the average brain volume for adult males is about 1450 c.c. Then, too, this skull capacity of modern man averages some 150 c.c. smaller than that of the Neanderthal man of Paleolithic times—but let us not speculate on which of our current social problems may have contributed to the relative microcephaly of today!

Strickler's study had supposed that mental deficiency would have an intelligence quotient of 80 or less. On the surface, one could consider this a fairly safe assumption, inasmuch as 80 on the Wechsler and Stanford-Binet scales is close to the tenth percentile for intelligence, whereas two standard deviations below the mean would represent an I.Q. of 70. But, safe or not, we decided to test Stickler's hypothesis in an older group. Our patients were aged 11 to 21, and we measured, or obtained from clinical records, the head circumferences of youngsters who were attending the University of Washington Adolescent Clinic, or the Western Montana Clinic. Using a steel tape, heads

were measured along a circumference including the external occipital protuberance (the "inion") and the most prominent part of the forehead supraorbitally. At least three measurements were obtained, with the largest one recorded as the actual head circumference. Without pretext of originality, we should like to reinforce the Mayo group's ideas with four observations of our own:

1. In a series of 1,775 normally intelligent adolescents, we found only 11 head measurements below the third percentile (0.62%). The first of these small heads belonged to Gary, a lad of 17, with an I.Q. of 90, who had suffered a compound skull fracture at the age of eight; his occipito-frontal circumference of 52.2 cm. falls just below two standard deviations from the mean. Initially, it was not hard to believe that severe injury had altered Gary's skull growth, and that he might logically be excluded from the series. It was then a long time—and a great many head measurements later — before we encountered John, 15-year-old, who had an I.Q. of 112, and a head circumference of only 48.4 cm.; this was recorded at his only visit to the Adolescent Clinic, before he vanished from our world. Malinowski's "magic" would like us, "under the influence of desire," to have omitted John from the series, perhaps as a mistake in recording. But then, to our dismay, there came Connie, a highly successful junior in high school, who was in the fifth percentile for height and who had a head size a full centimeter below normal range, and shortly thereafter we met Wendy, nearly 18, and also bright, with a head no larger than Connie's.

Lest "man's hopes and desires affect what he sees," Stickler came to our support by foot-noting in 1968[4] his interim finding of five Mayo Clinic exceptions to his rule. This encouraged us not to color our science with non-logical sources of beliefs!

Bela Schick used to say: "In making theories, always keep a window open so that you can throw one out if necessary. Twenty theories can be made in five minutes." And while it would have been nice to have an airtight theory, Stickler's hypothesis remains useful despite the occasional exception.

2. In 106 retarded adolescents, aged 11 to 18, the incidence of microcephaly was 11 per cent. All these patients were living in the community and nearly all were attending school, usually in special education classes. Their I.Q.'s ranged from 20 to 80, with the great majority in the seventies. We think it is important that one in nine of this group could have been diagnosed with little more intricate than a tape measure—for with a microcephalic head measurement, the chances are about 20:1 that mental deficiency coexists.

Table 1

	Number of Cases	Microcephalic	Percent Microcephalic
Normals	1,775	11	0.62
Retarded	106	12	11.
Growth Failure, Normal Intelligence	34	5	15.

3. Of 34 adolescents with growth failure, but normal in intelligence, five (15%) were microcephalic.

Although this is an insignificant number of cases, the results are at variance with the empirical belief that growth failure itself is seldom a cause for small head circumference. Hypopituitarism is accompanied by microcephaly in 20-25 per cent of cases; two of our five small-headed youngsters were considered to be hypopituitary, thus leaving a nine per cent incidence of microcephaly in other causes of growth failure.

4. Disposable paper tapes average 0.3 cm. more than steel tape measurements. Our subjects were 60 staff members of the Division of Child Health; two separate observers, one with steel and one with paper tapelines, recorded findings independently. Previously our general belief had been that the paper tape measures — either because of their greater width or because of the examiner's unwillingness to pull sufficiently tight lest the paper tear—would average a full centimeter greater than the metallic measures. This observation would suggest, because of the small difference, that we need not discard the more sanitary paper tapes for inaccuracy.

Head sizes were on the national census questionnaire during the 19th century, but have lately fallen out of style. Yet, if we are patient, they may again return to favor, just ah have wigs, long hair, tight trousers, and beards. Anyway, we think head-size deserves a new trial on the medical records of today. Marcel Proust, in *A La Recherche Du Temps Perdu* departs from his wonted gossipy style and tells us why:

"For medicine being a compendium of the successive and contradictory mistakes of medical practitioners, when we summon the wisest of them to our aid, the chances are that we may be relying on a scientific truth the error of which may be recognized in a few years time. So that to believe in medicine would be the height of folly, if not to believe in it would be of greater folly still, for from this mass of errors there have emerged in the course of time many truths."

Summary

Head circumference below the third percentile carries with it a 20: 1 chance of mental deficiency in adolescents. Only one subject in 160 with have a head circumference below the third percentile, and yet be normal in intelligence. Paper tapes do not introduce significant error in the measurement of head circumference. Among retarded adolescent out-patients, microcephaly was present in 11 per cent. •

REFERENCES

[1] O'Connell, E. J., Feldt, R. H., and Stickler, G. B.: Head Circumference, Mental Retardation, and Growth Failure. Pediatrics, 36:62-66, 1965.
[2] Gellis, S. S.: Yearbook of Pediatrics, 1966-1967 Series, Chicago. Editors Comment p. 420.
[3] Nellhaus, G.: Head Corcumference From Birth to Eighteen Years: Practical Composite International and Interracial Graphs. Pediatrics, 41:106-144, 1968.
[4] Clothier, M. D., and Stickler, G. B.: Letters to the Editor. Pediatrics 42:209-210, 1968.

Pollen, mold and plant survey, 1970*

L. Bruce Anderson, Jr., MD, and Gary Hoppel,†
Billings, Montana

ORDINARILY A SINGLE POLLEN survey would not be of unusual interest in view of the many that are published periodically by the Pollen and Mold Committee of the American Academy of Allergy. This particular one has been submitted for publication not only because no other year-round survey has been done in Montana since the early nineteen thirties but also because it will be generally available to physicians in this area. For the past 35-40 years, a single survey done by Hollister-Stier Laboratories in Miles City, Montana[1,2] has been the chief guide for treatment of allergic patients in Montana east of the mountains. Since that time the influx of population into the area has increased both the number and variety of trees under irrigation as well as the general character of weeds. In particular, Mexican fireweed (also known as burning bush, Kochia, or summer cypress) has become the dominant tumbleweed and is probably responsible for more pollinosis symptoms than Russian thistle, having moved steadily westward in the past 15-20 years in farm land and disturbed habitats of the Great Plains. Because of these reasons and lack of modern data, a pollen and mold spore survey was undertaken in Billings beginning in January and extending through December, 1970.

Methods and Materials

A standard technic for atmospheric pollen sampling by the gravity method was used as recommended by the pollen and mold committee of the American Academy of Allergy. In brief, a slide thinly coated with petrolatum was exposed to the air in a Durham

*Presented at the regional meeting of the American College of Physicians, Billings, Montana, November, 1970. Reprint requests: Department of Allegry, The Billings Clinic, 2802 Ninth Avenue North, Billings, Montana 59101.

†Gary Hoppel is Laboratory Assistant at The Billings Clinic, Billings, Montana.

TABLE 1

POLLEN COUNT, BILLINGS, MONTANA 1970
Grains/cm^2/month

L. Bruce Anderson, Jr., M.D.
Gary Hoppel

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
MAPLE			12	54								
JUNIPER			4	12	30	1	8	4	1			
ELM			23	474	2							
PINE				2	7	954	526	27	19	10	1	2
HORMODENDRUM				4	52	68	136	169	210	79	10	4
HELMINTHOSPORIUM				1	43	16	19	26	19	15	5	3
ALTERNARIA				2	10	11	31	39	22	9	3	4
POPLAR - COTTONWOOD				3	433							
ASH					64							
BOX ELDER					176							
BIRCH					5							
WALNUT					2	7						
WILLOW					8							
CHENOPOD - AMARANTH					3	5	16	124	23	2	1	1
GRASS					2	164	52	7	1			
SMUT						16	124	170	37	22	11	5
HONEY LOCUST						19	1					
RAGWEED						3	5	32	14	6	1	1
CLOVER						1		4				
ARTEMISIA							6	44	150	78	9	7
LINDEN							7					
ALFALFA							3					
GREASEWOOD								2				
CORN								1				
FUSARIUM		2						1			2	

gravity sampler for 24 hours daily. The slide was then stained with Calberla's solution (basic fuchin) and all the identifiable pollen and mold spores in two square centimeters was counted under a microscope, the results divided by two and reported as grains per sq. cm. per day. The sampling was done on the roof of The Billings Clinic, a flat topped three story building which is approximately in the geographic center of the community.

Because of the difficulty in identifying pollens, field surveys were carried out simultaneously in and around Billings by sampling individual trees, grasses, and weeds for pollen with a similar slide. At the same time, the approximate abundance of each species of wind pollinated plant was estimated and correlated with the counted samples. Additional help in identification was obtained from publications listed in the bibliography.[3,4,5]

Results

Pollen Count: All identifiable pollen and mold spores are shown in Table 1 reported as total grains per sq. cm. per month. In January and February, no pollens or mold spores were reported since there were so few on the slide; even after exposure for 7-8 days at a time, they could not be reported in terms of grains per sq. cm. However, by scanning the entire slide, several mold spores (helminthosporium, fusarium, and hormodendrum) as well as occasional grass and ragweed pollen grains were seen, the latter presumably a residual from the previous pollen season blown up from the dust by the wind. The earliest plant to pollinate was aspen which began producing pollen grains locally by March 10 although none was seen on the official pollen slide. Maple appeared officially March 15 and elm and juniper March 19. During April and May, the trees

were dominant with grass pollen not really appearing until early June, peaking in late June, and disappearing by early August. Chenopod (lamb's quarters, Mexican fireweed, and Russian thistle) and amaranth (pigweed) pollen, which cannot be differentiated except under an electron microscope, began appearing as lamb's quarters in mid-July, becoming maximum in August as Mexican fireweed and Russian thistle, and fading by mid-September. Ragweed as shown in earlier surveys is very mild in this area with daily pollen counts of only 2-3 grains per sq. cm. at the height of the season in late August and early September. This contrasts favorably with the Ohio valley where daily counts as high as 300-400 per sq. cm. are often recorded. Mixed with the ragweed count is cocklebur and giant poverty (burweed marsh elder) each of which have similar pollen. The only ragweeds identified so far in this survey are Western and giant ragweed; short ragweed, so abundant in the east, has not been seen by us. The artemisia pollens (herbaceous sageworts and woody sage) begin appearing as sagewort in July with the woody sages pollinating maximally the last week in September and first week in October. The chief mold spores (hormodendrum, alternaria, helminthosporium) and cheat smut are most numerous in July, August, and September although they occur throughout the year. They are most readily found by brushing a prepared slide through the grass. As one would predict, the highest daily counts occur during or after rainy periods. It should be stated that many molds such as aspergillus and penicillium can only be identifed by culture and colony count since their spores are too small to be counted in a routine slide sample.

Plant Survey: As stated earlier, a rough plant survey in and around Billings was carried out simultaneously with the pollen count, and Table 2 lists the most important ones whose abundance coincided with significant daily pollen counts making them suspect as causes of endemic hay fever and asthma. Many favorites listed on most skin test sheets in this area are missing, not

TABLE 2
MAJOR POLLENOSIS PLANTS
Billings, Montana 1970

I. TREES	
Aspen (Populus tremuloides)	March
Maple (Acer)	March & April
Elm (Ulmus)	March & April
Cottonwood (Populus)	April & May
Cottonwood Common (Deltoides)	April & May
Cottonwood Black (Trichocarpa)	April & May
Cottonwood Western (Sargenti)	April & May
Box Elder (Acer)	May
Birch (Betula)	May
Popular (Lombardy)	May
Willow (Salix)	May
II. GRASSES	
Annual June (Poa annua)	May & June
Giant Rye (Elymus condensatus)	May & June
Kentucky Blue (Poa pratensis)	May & June
Koelers (Koeleria cristata)	May & June
Meadow Fescue (Festuca elatior)	May & June
Orchard (Dactylis glomerata)	June & July
Red Top (Agrostis alba)	June
Smooth Brome (Bromus inermis)	May & June
Timothy (Phleum pratense)	June
Cheat (Bromus Tectorum)	June & July
WEEDS	
I. COMPOSITAE	
A. Ragweed Tribe	
1. Genus Ambrosia	
a. Giant Ragweed (Ambrosia trifida)	August & September
b. Western Ragweed (Ambrosia psilostachya)	August & September
2. Genus Iva	
a. Burweed marsh elder (Iva xanthifolia)	August & September
3. Genus Xanthium	
a. Cocklebur (Xanthium pennsylvanicum)	August & September
B. Tansy Tribe (Anthemideae)	
1. Genus Artemisia	
a. Woody Sagebrush	
1. Common Sagebrush (Artemisia tridentata)	September & October
2. White sagebrush (Artemisia ludoviciana)	September & October
3. Green sagebrush (Artemisia dracunculoides)	September & October
b. Herbaceous (sagewort)	July-September
II. Chenopodiales	
A. Goosefoot Family (Chenopodiaceae)	
1. Russian thistle (Salsola pestifer)	July to September
2. Mexican fireweed (Kochia scoparia)	July to September
3. Lamb's quarters (Chenopodium album)	July to September
4. Greasewood (Arcobatus vermiculatus	May to September
B. Carelessweed (Amaranths)	
1. Pigweed (amaranthus retroflexus)	July & August
III. Miscellaneous	May & June
Alfalfa (Medicago sativa)	May to September
Sweet Clover (Melilotus alba)	

necesarily because they do not occur, but because they are rarely seen around Billings. We have yet to identify short ragweed and artemisia vulgaris (mugwort) in Billings. By far, the most ubiquitous plant is Mexican fireweed which comes up in the sidewalk cracks and on every vacant lot in the city. Smooth brome and cheat grass are the most abundant grasses occurring in waste areas, but from the immunologic point of view, this is unimportant since all the grasses listed cross react extensively with each other and with timothy. Skin testing and treating hay fever with more than a few grasses is thus superfluous.

An interesting finding during the survey was the fact that all silver poplar trees are female and do not produce pollen although they do make cotton. As yet, there is no evidence that this produces symptoms, although cottonwood cotton is suspect in certain individuals.

The high pine pollen count in Billings is caused by the city's location downwind from the extensive forests in the mountains 60 miles to the west, and includes pollen from fir, hemlock and spruce which are indistinguishable from pine. While the city is bathed in pine pollen most of the summer, it is doubtful that it causes symptoms except in rare individuals. Physicians living in cities such as Missoula, Montana that are literally coated yellow with pine and fir pollen throughout the summer, concur with this opinion. Juniper is perhaps another matter since mountain cedar, a juniper, is known to cause extensive pollinosis in the Southwest.

Sugar beet is not listed because the beets are harvested each year before they pollinate and do not cause a problem. Only in those areas (Idaho) where sugar beet is grown for seed is it likely to cause trouble, and even, then, it pollinates only every other year.

With the exception of alfalfa and clover, both of which produce significant local airborne pollen when harvested, the flowering plants such as goldenrod and dandelion are insect pollinated and do not ordinarily cause endemic hay fever. •

REFERENCES

[1] Samter, M., and Durham, O. C.: Regional Allergy of the United States, Canada, Mexico and Cuba. Springfield: Thomas, 1955.

[2] Metzger, F. C.: The climatic treatment of hay fever and asthma. J.A.M.A., 112:29, 1939.

[3] Wodehouse, R. P.: Pollen Grains. New York: Hafner Co., 1959.

[4] Brown, G. T.: Pollen Slide Studies. Springfield, Thomas, 1949.

[5] Sheldon, J. M., Lovell, R. G., and Mathews, K. P.: A Manual of Clinical Allergy (2nd Edition). Philadelphia: Saunders, 1967.

[6] Newmark, F. M.: Pollen Aerobiology—The Need for Research and Compilation: Ann. Allergy, 26:358, 1968.

Cardioversion in a postoperative patient

Peter Rosen, MD, Worland, Wyoming

SINCE LOWN POPULARIZED cardioversion its use has become widespread in the treatment of both ventricular fibrillation and a wide variety of cardiac arrhythmias. The bulk of the postoperative experience has, of course, been on the rheumatic heart in efforts to restore atrial fibrillation to normal. In addition, there have been occasional experiences with other arrhythmias.

The following case is reported to add to the experience in the postoperative patient, as well as to confirm the fact that fear for wound healing need not prevent expedient usage of electro-cardioversion.

CASE REPORT

This concerned a 40-year-old white female with no prior history of cardiac disease but for occasional bouts of supra-ventricular tachycardia which had always been short lived; responding to carotid artery massage. She was admitted to Hot Springs County Memorial Hospital for D & C and conization for Class III pap smear. Because pathologic diagnosis was carcinoma in situ, a hysterectomy was performed. The postoperative course was complicated by atelectasis and pneumonia (patient smoked two packs of cigarettes per day) and 5 days postoperative hysterectomy, by wound dihiscence and partial evisceration. A secondary closure was performed but when further complication of pseudomonas wound infection appeared, the retention sutures of the secondary closure were removed and the wound allowed to granulate onto the re-exposed bowel, accepting the large ventral hernia. With the wound in this precarious state, the patient suddenly developed a rapid supra-ventricular tachycardia. When carotid artery massage did not convert her she was rapidly digitalized with combination of Cedilanid and Digoxin intravenously. During the two hours of digitalization, repeated efforts were made to convert her with both carotid massage and intramuscular ephedrine. When intravenous quinidine and further repeated efforts of carotid artery massage failed to cardiovert her, it was decided to attempt electro-cardioversion; as her condition was deteriorating rapidly (falling blood pressure, cyanosis and agitation). She was, therefore, given 15 mg. of Valium intravenously and cardioverted to NSR with 100 watt-sec. of DC shock. Her condition improved immediately, and she thereupon made an uneventful recovery, being discharged from the hospital with a well granulated wound (although with a large ventral hernia) in 14 days. She was maintained on Digoxin 0.25 mg. daily and had no recurrences of arrhythmia.

Discussion

The use of electro-cardioversion has received widespread popularity on the cardiac services of most hospitals. In addition, the cardiac surgeon is aware of the benefits and safety of the procedure. As the general surgeon and gynecologist becomes more involved with the elderly and cardiac patients they, too, will encounter postoperative situations of undesirable cardiac arrhythmias. In addition, these patients, as with the one above, are frequently those with additional problems of wound infections, etc. in whom a cardiac arrhythmia may be the proverbial lethal straw. Electro-cardioversion can safely be performed with no anesthesia other than valium. We are not arguing the superiority of electro-shock versus pharmocologic cardioversion, nor yet that all arrhythmias should be treated as above, but simply wish to confirm the safety of this method in the precarious postoperative patient. •

REFERENCES

[1] Yang, Sing San, Maranhao, Vladir, Monheit, Richard, Ablaza, Sariel G. G., and Goldberg, Harry: Cardioversion Following Open-Heart Valvular Surgery, British Heart Journal, 28:309, May 1966.

[2] Meyer, Allen D., M.D., and Greenberg, Harry B., M.D.: Cardioversion of Recurrent Postoperative Supraventricular Tachycardia in Wolff-Parkinson-White Syndrome, The American Journal of Cardiology, 18:904, December 1966.

[3] Selzer, Arthur, M.D., F.A.C.P., Kelley, John J., Jr., M.D., F.A.C.P., Gerbode, Frank, M.D., Kerth, William J., M.D., Blackley, James E., M.D., Morgan, John J., M.B., M.R.A.C.P., and Keyani, K., M.D.: Treatment of Atrial Fibrillation After Surgical Repair of the Mitral Valve, Annals Internal Medicine, 62:1212, June 1965.

[4] Kahn, Donald R., M.D., Kirsh, Marvin M., M.D., Ferguson, Pauline W., and Sloan, Herbert, M.D.: Cardioversion after Mitral Valve Operations, Department of Surgery, University of Michigan Medical Center, Circulation 35 (Supplement 1) 82: April 1967.

CALORIES / 7 oz. Serving*

Beef Broth	22	Vegetable	68
Consommé	29	Tomato	69
Chicken with Rice	43	Cream of Asparagus	70
Chicken Gumbo	48	Cream of Chicken	76
Chicken Noodle	54	Cream of Mushroom	115
Cream of Potato	58	Green Pea	116
Chicken Vegetable	60	Cream of Shrimp (Frozen)	132
Vegetable Beef	66	Bean with Bacon	133

In planning high or low calorie diets, Campbell's more than 50 different soups offer you a wide choice. And, most of Campbell's Soups contain a wide variety of ingredients that can serve as supplementary sources of many essential nutrients.

* From "Nutritive Composition of Campbell's Products" which gives values of important nutritive constituents of all Campbell's Products. For your copy, write to Campbell Soup Company, Dept.35, Camden, New Jersey 08101.

There's a soup for almost every patient and diet ...for every meal and, it's made by Campbell

MONTANA

Diabetes Screening in Montana

Despite severe winter weather conditions and an extremely small and scattered population, Montana ranks second among the states in terms of the percentage of population screened for diabetes by state health departments, according to the April issue of the Disease Detection Newsletter.

The Montana State Department of Health managed to screen 19,587 of the state's 682,133 residents (1970 census) for diabetes from July 1, 1969 through June 30, 1970—a total of 2.87 per cent of the state's population. The entire statewide diabetes screening program is coordinated by the Division of Disease Control, which is directed by Mary E. Soules, MD. When the service was initiated about four years ago the health department had in mind serving those areas that had no local health departments. Response to the program was almost overwhelming, according to Dr. Soules. She reported that her staff at first had difficulty keeping up with the impetus the program developed, and estimates that it will take about two to three years to make the rounds of the entire state before repeating programs.

A state health department health educator and a consultant nurse assist Dr. Soules with the program. When a request comes into the health department from a community the request is approved by the area's medical community, and then the health educator travels to the community to help organize the local program and teach program personnel about diabetes. With the exception of Dr. Soules, the health educator and the nurse consultant, everyone connected with the Montana community programs works on a volunteer basis. The success of each community's program and of the state program as a whole depend on the cooperation and participation of groups and individuals within each community. Many Montana programs are conducted on a county basis, with testing sessions held at a central school or county building. In some counties, however, testing is offered at several locations throughout the county so more persons have access to the screening.

Among the 19,587 persons tested during the last fiscal year there were 445 persons with abnormal blood glucose values, a 2.2 per cent figure. All 445 were referred to their private physicians for further testing; 423 saw their physicians and 32 were reported as new diabetics, although reports were not received on many of the referred screenees.

WYOMING

Cancer Grant

The University of Wyoming has received a $21,045 cancer research grant from the American Cancer Society. Dr. Francis A. Barrett, president of the Cancer Society's Wyoming Division, said it is the first time a national research grant has been awarded to the Wyoming Division. He noted that Wyoming does not have a medical school and described the grant as a tribute to the quality of research work by Dr. Ivan I. Kaiser of the division of biochemistry at the University which concerns the effects of a chemotherapeutic, 5-Fluorouracil on RNA structure and function in cells. Controlling malignant growths by manipulating RNA and DNA factors is a prime target of cancer research in medical centers throughout the nation.

WSMS Members Honored

Dr. Brendan P. Phibbs, Casper cardiologist, has been appointed an assistant clinical professor of medicine on the University of Colorado's School of Medicine volunteer faculty. Dr. Phibbs is taking a year's sabbatical leave in mid-July to be associate professor of cardiology at the University of Arizona Medical School and director of the Heart Station at the University Hospital in Tucson.

He has practiced in Casper for the past 20 years where he pioneered a 15-year community school program which has virtually wiped out streptococcal infections which cause rheumatic fever. His accomplishments in this field were recognized recently when he and another physician presented a joint report at the American Heart Association's scientific sessions. Their report was published in the Wall Street Journal and the Journal of the American Medical Association.

* * * * *

Dr. Francis A. Barrett of Cheyenne has been elected vice chairman of the Western Interstate Commission for Higher Education, a public agency which helps the 13 western states work toward increasing educational opportunities for western youth, improving university and college programs, expanding the supply of specialized manpower and informing the public of higher education's needs.

Dr. Barrett has also been named a member of the 11-man Mountain-Plains Regional Council of the American Association for Higher Education. The council includes students, faculty members, administrators and laymen.

* * * * *

Drs. Claude O. Grizzle of Cheyenne, O. D. Perkes of Afton and Edward W. McNamara of Rawlins have been re-elected to the board of the Wyoming Heart Association.

* * * * *

Dr. C. W. Jeffrey of Rawlins has been named the third recipient of the University of Wyoming Alumni Association Medallion Award in recognition of his service to the university. Dr. Jeffrey was the Cowboys' football team physician from 1945 to 1970 and has performed various philanthropical acts for UW, including a 1967 gift of property which was used to establish the Charles W. Jeffrey Scholarship Fund for freshmen athletes.

* * * * *

Arthur Abbey, past executive secretary of the Wyoming State Medical Society, is the newly elected chairman of the Mountain States Regional Medical Program's 26-member Regional Advisory Group. The program includes Wyoming, Idaho, Montana and Nevada.

Abbey will also be ex-officio chairman of the seven-member executive committee which includes Dr. J. B. Gramlich, Cheyenne surgeon. He is president of the Wyoming Hospital Service in Cheyenne and has long been active in health and medical circles.

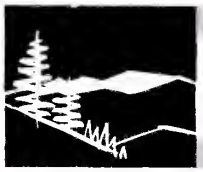
* * * * *

Dr. Herrick J. Aldrich, Sheridan, Wyo., physician, has been elected to serve as one of Wyoming's representatives on the Mountain States Regional Medical Program's Regional Advisory Group.

* * * * *

Dr. Thomas A. Nicholas, Buffalo, Wyo. general practitioner, has been appointed to a one-year term on the Mead Johnson Awards Committee of the American Academy of General Practice. The eight-member committee is responsible for administering a grant which Mead Johnson & Company gives annually to the academy. Purpose of the grant is to aid young physicians in completing a year of general or family practice residency. Each of the 16 winners chosen by the committee receives $1,200 award.

Dr. Nicholas has also been re-elected to the eight-member regional advisory group of the Colorado-Wyoming Regional Medical Program. The group serves as a board of directors for the Denver-based organization which works with Wyoming and Colorado health personnel and institutions to improve the quality of health care.



COLORADO

WICHE Receives Medical Specialty Society Award

The Western Interstate Commission for Higher Education of Boulder, Colorado has received one of seven awards granted by the American College of Physicians this year to honor outstanding efforts by individuals and institutions toward raising the standards of medical research, education and patient care.

The College, an international scientific-educational society of 16,000 specialists in internal medicine and related specialties, gave the Commission its Edward R. Loveland Memorial Award at colorful Convocation ceremonies opening its 52nd Annual Session at Denver.

BROADMOOR yourselves

for the pure pleasure of it all!

Discover America's finest resort facilities, dining and accommodations, here within 5,000 acres of enjoyment at the gateway to the Colorado Rockies.

The BROADMOOR Colorado Springs, Colorado

AS YOU LIKE IT

A medical potpourri

Compiled by Andrew M. Babey, MD, Las Cruces, New Mexico

1. "We believe that unless the uric acid level is over 9 or 10 mg%, one should await the first visible or roentgenologic evidence of tophi before starting to use uricosuric drugs or allopurinol. If the uric acid level is between 7.5 and 9 mg%, we put the individual, particularly if young or overweight, on a purine-free diet and limit the protein and calorie intake as the only provisional management." GUTMAN, A. B., *Clinical Trends in Rheumatology*, July-August 1970, p. 1.

2. "If we were sure that hyperuricemia inevitably leads to renal damage, then we would certainly reduce the blood uric acid level to normal. But our experience indicates that an elevated blood concentration of uric acid—except when very high—is not, of itself, the most important factor in the development of renal lesions." Ibid, p. 1.

3. "Pulmonary-function Tests Should be Done When the Patient is at His Best—to Set the Target When He is at His Worse.—Perhaps this point should have been the first. When a patient with chronic respiratory disease is admitted to hospital in severe respiratory failure it is sometimes difficult to know how officiously one should strive. The good physician does not wish to inflict a tracheostomy, artificial ventilation, vigorous physiotherapy, and the rest of the paraphernalia on a patient when technical success can only return him to a life of hopeless invalidism." CAMPBELL, E. J. M., Respiratory Failure, British Medical Journal, June 1965, p. 1451.

4. "The patient (with chronic pyelonephritis) is advised to take in large amounts of fluids. The frequency of visits to the physician varies according to need. The physician's personal examination of the urine sediment (wet mount and stained) is the best method of evaluating control. If his patient is in good health, symptom-free, and the urine sediments shows nothing, no antimicrobial should be given. "Longterm suppressive therapy" is a ploy that probably has its place, but with few exceptions antimicrobials are best not given in the absence of proved pyuria or bacteriuria. It is fairly well agreed that urine culture and disc sensitivity tests as usually performed are close to meaningless in determining the efficacy of treatment with nitrofurantoin, nalidixic acid, the soluble sulfisoxazole (Gantrisin), methenamine mandelate (Mandelamine), and penicillin. Therefore it is reasonable to try a drug and note its effect on symptoms, temperature, and wet mount and stained sediments. It is a common experience to incur the expense of a urine culture and disc sensitivity test only to learn that the tests indicate only two effective drugs such as ototoxic kanamycin and neomycin, but that the clinician had empirically given penicillin with at least a temporary "cure." Many of these patients will have remittent disability for the rest of their lives, and although it is always tempting to "give enough long enough" of a "bactericidal" drug, it is well to remember that the more lethal the drug is for bacteria, the more likely it is to be toxic to the patient's hematopoietic system, hearing, vestibular apparatus, liver and kidneys. Seldom does such hazardous potent therapy permanently stop the remittent disease." PECK, Sam, Pyelonephritis, Current Therapy 1970, edited by Howard F. Conn, W. B. Saunders, p. 456.

5. "Emergence of drug-resistant bacteria during treatment probably accounts for a minority of instances of relapse or apparent therapeutic unresponsiveness. For example, drug-sensitive, coagulase-positive staphylococci have not been observed to develop resistance to penicillin in vivo and continued active infection by this bacterium during penicillin treatment cannot be explained by development of penicillin resistance by the microorganism. The tacit assumption that persistence of infection has resulted from emergence of drug-resistant microorganisms is perhaps the commonest cause of errors in diagnosis and management of patients with infectious diseases." CLUFF, Leighton E., and SANDERS, Eugene, Mechanisms of Action of Antimicrobial Agents, Pediatric Clinics of North America, Volume 15, Number 1, February, 1968, p. 8.

6. "Nevertheless combinations of bacteriostatic and bactericidal drugs remain theoretically objectionable and certainly increase the likelihood of adverse reactions to drugs by the patient. Such therapy should be reserved for certain specific indications, such as enterococcal endocarditis." Ibid, p. 9.

A
BUILDING BLOCK
TO RECOVERY

"Welcome back, Ann"
As adjunctive therapy
DOUBLE STRENGTH
Orenzyme®
Bitabs One tablet q.i.d.
Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units; equivalent in tryptic activity to 40 mg. of N.F. trypsin
Reduces swelling
Hastens healing
Speeds recovery
trauma
One tablet q.i.d.
Indications: When used as adjunctive therapy for the rapid resolution of inflammation and edema, good results have been obtained in.
☐ Accidental Trauma ☐ Postoperative Tissue Reactions.
Other conventional measures of treatment should be used as indicated. In infection, appropriate anti-infective therapy should be given.
Contraindications: ORENZYME BITABS should not be given to patients with a known sensitivity to trypsin or chymotrypsin.
Precautions: It should be used with caution in patients with abnormality of the blood clotting mechanism such as hemophilia, or with severe hepatic or renal disease. Safe use in pregnancy has not been established.
Adverse Reactions: Adverse reactions with ORENZYME have been reported infrequently. Reports include allergic manifestations (rash, urticaria, itching), gastrointestinal upset and increased speed of dissolution of animal-origin surgical sutures. There have been isolated reports of anaphylactic shock, albuminuria and hematuria. Increased tendency to bleed has also been reported but, in controlled studies, it has been seen with equal incidence in placebo-treated groups. (See Precautions.) It is recommended that if side effects occur medication be discontinued.
Dosage: One tablet q.i.d.
THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144
TRADEMARK: BITABS U.S. PATENT NO. 3,004,893 9/70 0-009A 161

Orenzyme® Bitabs

Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units; equivalent in tryptic activity to 40 mg. of N.F. trypsin

The causes of vaginitis are multiple

Trichomonads... monilia... bacteria
You can depend on AVC—comprehensive therapy that combats all three major vaginal pathogens, alone or in combination.

AVC
Cream (aminacrine hydrachloride 0.2%, sulfanilamide 15.0%, allantain 2.0%)

Suppositories (aminacrine hydrachlaride 0.014 Gm., sulfanilamide 1.05 Gm., allantain 0.14 Gm.)

Contraindications: Known sensitivity to sulfonomides.
Precautions/Adverse Reactions: The usuol precautions for topicol and systemic sulfonomides should be observed becouse of the possibility of obsorption. Burning, increased local discomfort, skin rosh, urticorio or other monifestotions of sulfonomide toxicity ore reosons to discontinue treotment.
Dosage: One opplicotorful or one suppository intravaginally once or twice daily.
Supplied: Creom – Four-ounce tube with or without opplicator. Suppositories – Box of 12 with applicotor.

TRADEMARK: AVC AV-104 2/71 Y-149

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

AVC
The treatment is singular

Incorporate.
To save taxes.

That's what everyone is telling you, Doctor.

Let's look at their mative for advising you to incorporate. Insurance people usually advise an annuity approach to pension and profit sharing. Bankers always recommend their trust department. Brokers encourage their management of common stocks. Attorneys—well they're professionals, but it is a substantial fee.

Incorporation is really a business decision. And you should get **unbiased, experienced** business advice.

Some Doctors should incorporate. Others should not. It's as simple as that. And no one can give yau gaod advice unless he does an intelligent corporate feasibility study of your practice.

We have no axe to grind because we have nothing to sell—no insurance—no investments—no farms—nathing—except the best carporate feasibility study in the cauntry.

Pardon the immodesty, but we are experts.

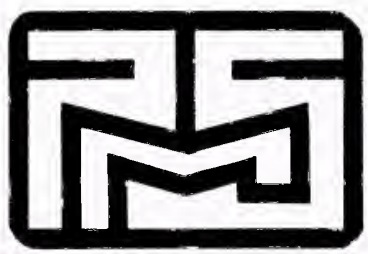
We work exclusively with physicians in private practice and we know the business side of medical practices inside and out.

We will do a feasibility study in your practice for $85.00 and you can rest assured that you have received **unbiased, expert** advice.

Our firm is natianwide, but our home is in the Rocky Mountains—in Denver. There is a PMS consultant in your Area. Just give him a call:

Albuquerque, New Mexico	Herb Hughes	(505) 298-5809
Albuquerque, New Mexico	Joe Listek	(505) 298-5809
Billings, Montana	Harry Miller	(406) 248-6203
Boulder, Colorado	George Hunt	(303) 444-3149
Colorado Springs, Colorado	George Schrameyer	(303) 598-2042
Denver, Colorado	Dick McMullen	(303) 986-2394
Denver, Colorado	Jim Meador	(303) 623-7165
Denver, Colorado	Ed Rarden	(303) 623-7165
Salt Lake City, Utah	Doyle Allen	(801) 394-5828
Santa Fe, New Mexico	Don Hughes	(505) 983-1314

Or clip the coupan below and drop it in the mail to aur Central Office in Denver:



PRACTICE MANAGEMENT SERVICES

601 BROADWAY
DENVER, COLORADO 80203

I would like to have an unbiased corporate feasibility study for my practice. Have your consultant contact me.

Name _____

Address _____

Telephone _____

City _____ State _____ Zip _____

Safety isn't everything in an antibiotic.

Until you need it.

Such as the time when tooth staining becomes a matter of consideration.

Or the patient has impaired kidney function.

Or there is a potential for a severe allergic reaction with a penicillin-sensitive patient.

There is no guarantee of safety, even with Erythrocin.

Mild allergic reactions, abdominal discomfort and rare monilial overgrowth may occur. But serious reactions are extremely rare. And after 18 years, there are no known toxic effects on vital organs, bone, blood, nerves or teeth.

We'll ask *you* the question. Have you ever seen a severe reaction with Erythrocin? 101261

ERYTHROCIN®

ERYTHROMYCIN, ABBOTT

The potency you need -the safety you want

See next page for brief summary, listing indicated organisms, precautions, etc.

Erythrocin®

(ERYTHROMYCIN, ABBOTT)

Brief Summary

Indications

Erythrocin is indicated against gram-positive cocci — staphylococci (most strains), pneumococci and streptococci (including enterococci). Active against other pathogens, such as *Corynebacterium, Hemophilus, Clostridium, Neisseria,* and *Treponema pallidum,* the agents causing trachoma and lymphogranuloma venereum and primary atypical pneumonia caused by *Mycoplasma pneumoniae* (Eaton agent). Establish susceptibility of pathogenic organism when practical. Maintain therapeutic levels for ten days in the treatment of streptococcal infections to help prevent rheumatic fever and glomerulonephritis. Also consider local measures or surgery whenever indicated.

Contraindications

Known hypersensitivity to erythromycin. I.M. preparation also contraindicated in patients hypersensitive to the "caine" type of local anesthetics.

Precautions, Side Effects

Occasionally abdominal discomfort, cramping, nausea or vomiting may occur; generally controlled by reduction of dosage. Mild allergic reactions, such as urticaria and other skin rashes, may occur. Serious allergic reactions have been extremely infrequent; if hypersensitivity is encountered consider appropriate countermeasures, e. g., epinephrine, steroids, etc., and withdraw drug. The rare possibility of overgrowth of nonsusceptible organisms should be kept in mind; if it occurs withdraw drug and institute appropriate treatment. Local venous discomfort, generally mild, may occur with I. V. administration. I.M. preparation is suitable for deep intramuscular administration only; restrict use in children with small muscle mass. A mild transient local discomfort sometimes occurs following rectal insertion of Erythrocin Suppositories; discontinue if significant discomfort persists.

Administration and Dosage

I. ORAL: In adults with mild to moderate infections caused by readily-susceptible organisms 1.0 Gm. daily; more severe infections or those caused by less susceptible organisms 2.0 Grams daily; unusually severe infections up to 4 or more Gm./day. Daily dose in children is 15 to 25 mg./lb./day depending upon severity of infection. Daily dose should be administered in divided doses at 4-to-6 hour intervals. Continue treatment for at least 48 hours after symptoms have subsided and temperature has returned to normal. In fulminating or life-threatening infections, a parenteral form of erythromycin is preferred.

II. PARENTERAL: Intravenous administration may be continuous or intermittent (6 to 8 hour intervals); 1 to 4 Gm. daily in adults; 15 to 25 mg./lb./day in children, depending upon severity of infection. Recommended I.M. dose is 100 mg. (2 ml.) for adults, 50 mg. (1 ml.) for children 30 lbs. or more and 1.4 to 1.8 mg./lb. in smaller children. Injections are usually given at 6 to 8 hour intervals; may be given at 4 to 6 hour intervals for severe infections.

III. RECTAL: Following therapeutic doses are recommended in children: to 20 lbs., 1-125 mg. suppository every 8 hours; 20 to 40 lbs., 1-125 mg. suppository every 6 hours.

Change to oral therapy as soon as practicable.

101281

OBITUARIES

Montana

Gordon Arnold Anderson, M.D., Deer Lodge, died at his home on March 20, 1971.

Doctor Anderson was born in Hibbing, Minnesota, on July 16, 1907. He received his B.S. degree from the University of Minnesota in 1934 and his M.D. degree from the University of Minnesota Medical School in 1935. Following his internship at the Murray Hospital in Butte, he practiced in Great Falls for a period of two years. In 1937 he moved to Deer Lodge where he was engaged in the general practice of medicine until ill health forced his retirement in 1969. Doctor Anderson served as city and county health officer for a number of years and was active in the affairs of his community, his church, and Scottish Rite and Shrine organizations.

John Harlan Bridenbaugh, M.D., a founder of The Billings Clinic, died on February 17, 1971. Doctor Bridenbaugh was born in Dakota City, Nebraska, on September 9, 1886. He received his A.B. degree from Morningside College, Sioux City, Iowa, in 1910 and his M.D. degree from Rush Medical College in 1914. After completing his internship at St. Louis City Hospital, he moved to Billings and became associated in the practice of medicine with Arthur J. Movius, Sr., M.D.

After serving in the medical corps during World War I, he resumed his practice in Billings, specializing in Radiology. Doctor Bridenbaugh was especially active in the affairs of his community and church. He also participated in the activities of many important committees of the Montana Medical Association and of his specialty society.

Colorado

Richard Tuteur, M.D., well-known retired Denver physician, died February 27, 1971.

Born in Germany in 1884, he practiced medicine there until coming to Denver in 1936. He retired from active practice in 1960. A plaque honoring him for fifty years of medical service was presented to him by the Denver Medical Society.

He was a member of the BMH Synagogue for 35 years, Beth Joseph Synagogue, B'nai B'rith and the Denver Medical Society.

Doctor Tuteur is survived by his wife, Lotte; a daughter, Mrs. Milton Tucker; two sons, Wolf of Denver and Franz of New Haven, Connecticut; and eight grandchildren.

Wyoming

William W. Horsley, M.D., of Worland, Wyoming died March 10 at a Billings hospital where he had been a patient for several weeks.

Doctor Horsley, a Lovell, Wyoming general practitioner for more than 40 years, was one of the foremost authorities on roses in the United States. He came to Lovell in 1924 to help his father-in-law, who needed assistance in his medical practice because of poor health. In 1931 Doctor Horsley's brother-in-law joined the practice and three years later they opened the hospital which served northern Big Horn County until 1957 when a new hospital was built.

Under Doctor Horsley's supervision, Lovell became a rose showplace visited by florists and gardeners from throughout the nation. The physician was director of the American Rose Society for 12 years during which he helped christen the "Peace" rose in 1945—the same year he was "knighted" by the Royal Rosarians at the Portland Rose Festival for his outstanding work in promoting and growing roses.

Doctor Horsley is survived by his widow, Glen; one daughter, Helen; and three sons, Dr. Edward C. Horsley of Worland, Dr. A. W. Horsley of Oklahoma City, Oklahoma, and Jerome Horsley of Provo, Utah; five sisters and 14 grandchildren.

Marshall J. Hannum, Jr., M.D., of Sheridan, Wyo. died January 12 at St. Luke's Hospital in Denver following heart surgery.

The operation appeared successful; however, unexpected complications developed shortly after surgery. The 44-year-old general practitioner had suffered a heart attack last year.

Doctor Hannum graduated from the University of Wyoming with a bachelor's degree in 1940 and received his M.D. degree from the University of Colorado in 1954. During his internship at University of Iowa Hospitals, he spent two months on special orthopedic work and worked extensively in orthopedics and fractures during his surgical residence at the Thomas D. Dee Memorial Hospital in Ogden, Utah. In 1956 Doctor Hannum joined the Gillette, Wyoming practice of Dr. J. E. Hoadley before opening his own clinic in 1961. In 1970 Doctor Hannum moved to Sheridan. He was active in the Northeast Counties Medical Society, the Wyoming State Medical Society and the American Medical Association.

A memorial fund has been established in his name at the Campbell County Memorial Hospital in Gillette where Doctor Hannum was chairman of the medical staff.

In addition to his mother and brother, Doctor Hannum is survived by his widow, Kathleen; two daughters, Mrs. Terry West of Gillette and Molly Gretchen at home; and one son, Spike of Gillette.

Utah

Willard G. Noble, M.D., Logan physician and surgeon, died April 8, 1971, at the age of 69.

He was born March 22, 1902, in Smithfield, Utah, and was married to Margarete Biernat in December 1931, in Salt Lake City.

A graduate of Utah State University, Doctor Noble also attended the University of Utah. He received his M.D. degree in 1937 from the Louisiana State University School of Medicine, New Orleans. His internship was served at the Charity Hospital of Louisiana, also in New Orleans. Returning to Utah, Doctor Noble practiced in Panguitch, Richmond, and Logan. He also served as physician for the Union Pacific Railroad.

A member of the Cache Valley Medical Society, he served as its president in 1957. Doctor Noble was also affiliated with the Utah State and American Medical Associations, as well as the American Academy of General Practice.

An active member of the L.D.S. Church, Doctor Noble had fulfilled a mission to Germany. He was also a former member of the Richmond Lions Club.

Survivors include his widow; a brother, Edwin; and two sisters, Mrs. Edsel Scott, and Mrs. Lund Pehrson, all of Smithfield.

J. Mercer Anderson, M.D., Salt Lake City allergy and dermatology specialist, died April 9, 1971.

The son of Mons Heber and Mary Kirkham Anderson, Doctor Anderson was born March 19, 1901, in Lehi. He married Ruby Edmunds in June 1925.

A graduate of the University of Utah, Doctor Anderson attended the University of Utah College of Medicine, and received his medical degree in 1927 from Georgetown University. He completed his internship the following year at the Southern Pacific Railroad Hospital in San Francisco. Residencies were later served at the New York Medical Center and the Rowe Clinic in Oakland, California. He commenced practice in 1928 with the Salt Lake Clinic, and six years later established a private practice in allergy.

Board certified by the American Academy of Allergy in 1944, and the American College of Allergy in 1949, Doctor Anderson was also affiliated with the American Academy for the Advancement of Science; the New York Academy of Science; and the American Chemical Society, and was also a member of the Salt Lake County, Utah State, and American Medical Associations.

Surviving the doctor are his widow; one daughter, Mrs. Robert A. (Jeanne) Belanger, Brussels, Belgium; one brother, Myron Albert, Midland, Texas; and two sisters, Mrs. Ervin W. (Christa) Atkerson, Dallas, Texas, and Mrs. Robert B. (Mae) Evans, Arlington, Virginia.

LeRoy A. Wirthlin, M.D., prominent surgeon and church leader, died March 15, 1971, at the age of 68.

The son of Joseph and Emma Hillstead Wirthlin, he was born October 29, 1902, in Salt Lake City. He married Emily Stiefel in 1934, in the Salt Lake L.D.S. Temple.

Doctor Wirthlin was graduated in 1921 from the University of Utah and received his Doctor of Medicine in 1926 from the Harvard Medical School. Both his internship and residency were served at the Lenox Hill Hospital in New York City.

Doctor Wirthlin's first appointment was on the staff of Lenox Hill Hospital, and in 1936 he affiliated with the Queens General Hospital medical staff. Recognized for his knowledge and achievements in cancer surgery, Doctor Wirthlin served as an attending surgeon in New York during World War II. Following the war, he was awarded a certificate of merit by the Commission of Hospitals of New York for surgical service to the indigent sick of that city.

Returning to Utah in 1950, Doctor Wirthlin practiced first in Salt Lake, and then in Taylorsville, until the time of his death. He was a member of the American Board of Surgeons, and also the Salt Lake County, Utah State, and American Medical Associations.

A member of the L.D.S. Church, Doctor Wirthlin was a patriarch in the Taylorsville Stake. He had also served on the Church General Welfare Committee for 18 years.

Survivors include the doctor's widow; three sons and one daughter; 21 grandchildren; two sisters and one brother.

PICKER Medical Products

3890 ELM STREET — TEL. 388-5731 — DENVER, COLORADO 80207

Offices also in:
Colorado Springs, Colorado
2236 Glenwood Circle, 635-8768

Salt Lake City, Utah
21 Kensington Street, 487-7519

Albuquerque, New Mexico
113 Sierra Dr., S.E., 255-1288

Medical X-Ray Equipment

Accessories & Film

Nuclear Equipment

A New Solution...

THE REAL ESTATE COUNSELOR WILL WORK FOR YOU

- He is most interested in listening to your problems involving real estate.
- He is capable of analyzing all pertinent information, explaining alternative solutions, and working with your attorney, CPA, banker or other financial advisor so that you might enjoy the best benefits of real estate ownership.
- He can help you improve your income, tax shelter, leverage, and equity position in Colorado or out-of-state properties.
- He will give his personal and confidential attention to help you achieve your financial objectives.
- Please call me and find how I can help you.

WESLEY A. SEGELKE

real estate counselor

Denver, Colorado **By Appointment** **757-8553**

THE EMORY JOHN BRADY HOSPITAL

401 Southgate Road **COLORADO SPRINGS, COLORADO 80906** **MElrose 4-8828**

E. JAMES BRADY, M.D., *Medical Director*

CAMPBELL F. RICE, *Superintendent*

Francis A. O'Donnell, M.D.
Robert W. Davis, M.D.
Richard L. Conde. M.D.
Paul A. Draper, M.D.
Charles W. McClellan, M.D.
James E. Edwards, M.D.

For the care and treatment of Psychiatric disorders.
Individual and Group Psychotherapy and Somatic Therapies.
Occupational, diversional and outdoor activities.
X-ray, Clinical Laboratory and Electroencephalography.

WANT ADS

CALIFORNIA: DIRECTOR, MEDICAL SERVICES, Riverside General Hospital—University Medical Center. Eligible State License + any American Specialty Board Certification + 5 years in medical or surgical specialty, including minimum 1 year administration-teaching in accredited teaching hospital. $30,180/year. Contact Personnel Director, Riverside County, 4080 Lemon Street, Riverside, California 92501. 571-4-1B

FOR SALE—slightly used Shampaine examining table. Reasonably priced. Call or write B. M. Howard, Star Route, Box 256, Loveland, Colorado 80537—Phone: 667-6316. 571-3-1B

ONE 300 ma and one 200 ma X-Ray machines with fluoroscopic devices. Also complete dark room equipment and office furniture. May assume lease. Contact: Lowell Hansen, M.D., 1633 Fillmore, Denver, Colorado 80206, 388-4124. 571-2-1

MEDICAL SPACE AVAILABLE near hospital. Medical Dental Building, 3600 South Logan, Englewood, Colorado, 781-3106. 571-1-3B

OFFICE EQUIPMENT FOR SALE—reasonable offers will be considered. If interested write for details to Mrs. O. C. Reed, 2417 West "A" Street, Torrington, Wyoming 82240. 471-2-3

THREE-YEAR OLD FULLY EQUIPPED, AIR CONDITIONED CLINIC BUILDING, 1800 sq. ft., for rent or sale. Ideal site for either office practice only or can use open staff hospitals in Brighton or Greeley. 45 miles from Denver on Interstate 80. Smog-free rural community, no drug problems, etc. Call 659-5687 after 6 p.m. 271-2-6B

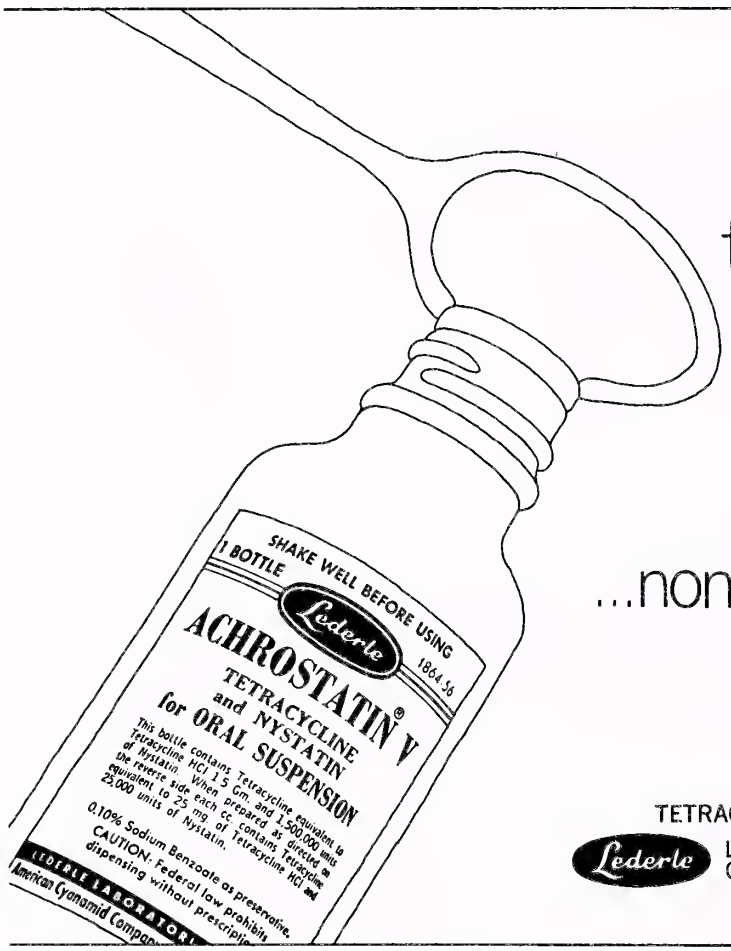
GENERAL SURGEON—96 Bed GM&S hospital; located in the friendliest city in the West; Medical Center Eastern Montana; unlimited outdoor recreation; excellent schools, community college; non-discrimination in employment; salary dependent on qualifications. Write or call Frank R. Mohs, M.D., Chief of Staff, VA Hospital, Miles City, Montana 59301. 371-2-3B

RADIOLOGIST DESIRES TO LOCATE in the Rocky Mountain area. Prefer Colorado. Like to locate in or near the mountains where there is skiing and fishing. Would consider a resort area. Being a family man I am concerned about the education of my children. I am board certified in Radiology and Nuclear Medicine with 15 years experience. Desire solo practice, however, would like a reasonable amount of time off for education and vacation. I am presently Chief of Radiology in a large hospital. I want to move out of the big city. All inquiries will be answered. Address all replies to Box Number 371-6-3B, Rocky Mountain Medical Journal, 1809 E. 18th Avenue, Denver, Colorado 80218. 371-6-3B

COLORADO SPRINGS, EASTERN SECTOR, established professional building with laboratory, X-ray and professional pharmacy. For sublease immediately. Space contains one consultation office, two examining rooms, private waiting room, business office and utility office with private entrance and basement storage area. Please contact: Associates in Internal Medicine, P.C., 2310 North Tejon Street, Colorado Springs, Colorado, telephone 636-5234. 471-4-3B

SPECIALISTS NEEDED TO round out comprehensive health facilities in delightful medium-sized medically isolated great plains community. We have surgeon, radiologist, and pediatrician. Need internist, OB-GYN, ENT, eye, urologist and orthopedist. We need men willing to pioneer. Call collect or write B. S. Bordman, M.D., 336-7423, Lamar, Colorado 81052. 1070-1-ind.

OFFICE EQUIPMENT FOR SALE (Shelley, Idaho). Complete set-up suitable for GP, general surgeon, internist, orthopedist. 100 MA GE x-ray, exam tables, EKG, op table, surg instruments, etc. All excellent condition, much new. Sell all or part, marked reduction. Reply to Box 471-1-2B, Rocky Mountain Medical Journal, 1809 East 18th Avenue, Denver, Colorado 80218. 471-1-2B


SHAKE WELL BEFORE USING
1 BOTTLE
Lederle
1864-58
ACHROSTATIN® V
TETRACYCLINE
and NYSTATIN
for ORAL SUSPENSION
This bottle contains Tetracycline equivalent to Tetracycline HCl 1.5 Gm. and 1,500,000 units of Nystatin. When prepared as directed on the reverse side each cc. contains Tetracycline equivalent to 25 mg. of Tetracycline HCl and 25,000 units of Nystatin.
0.10% Sodium Benzoate as preservative.
CAUTION: Federal law prohibits dispensing without prescription.
LEDERLE LABORATORIES
American Cyanamid Compa

of the tetracycline-nystatin products

...none is lower priced

TETRACYCLINE HCl 25 mg. NYSTATIN 25,000 U./cc.

Lederle LEDERLE LABORATORIES, A Division of American Cyanamid Company, Pearl River, New York 10965

Graduate Medical Assistants

Available for placement now, seven-month intensive preparation, including one month internship in a doctor's office.

We welcome your inquiries!

Contact Director of Placements at (303) 222-1526

Colorado College
of Medical and Dental Assistants
655 Broadway, Denver, Colorado

ARTIFICIAL EYES

Plastic eyes and glass eyes specially made to fit the most difficult cases. An expert eye-maker is in our office at all times to give your patients the satisfaction they must have. In business since 1906.

Write or phone for full details.

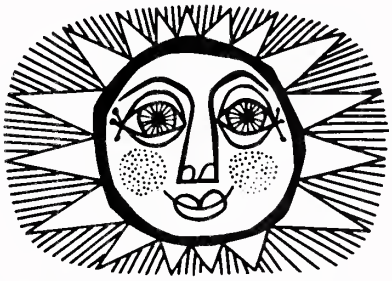
DENVER OPTIC COMPANY
330 University Bldg. • 16th and Champa • 825-0229
Denver, Colorado 80202

Prompt, professional service 24 hours a day, every day! A complete line of hospital beds, wheelchairs, traction equipment, oxygen, crutches, walkers, commodes, lamps, whirlpools — everything to help patients get well faster.

We Process MEDICARE Equipment Claims
DENVER
677 S. Colorado Blvd.
733-5521

MANZANILLO, MEXICO

THE BAHIA de SANTIAGO YACHT & COUNTRY CLUB



HOMES AND HOMESITES FOR VACATION — RETIREMENT — INVESTMENT

The Bahia de Santiago Yacht and Country Club, located on the "Riviera of the Pacific," between Acapulco and Puerto Vallarta, when completed will be a showplace of the Pacific Coast with yacht and marina facilities, swimming pools, tennis courts, and an eighteen hole golf course, plus one and one half miles of beautiful Pacific Beach. The club is situated in a spectacular tropical setting with hundreds of date and coconut palms on the property. It must be seen to be fully appreciated.

DENVER BANK REFERENCES — INSPECTION PRIVILEGES

FOR DETAILS CALL COLLECT: BILL BELLOMO, 303—534-4595
OR WRITE: SIERRA MADRE DEVELOPMENT COMPANY
P. O. BOX 4173, DENVER, COLORADO 80204

SOCIETY OFFICERS

Colorado Medical Society

OFFICERS—1970-71—Terms of Officers and Committeemen expire at the Annual Session of the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: Marvin E. Johnson, Denver.

President-elect: Kenneth A. Platt, Westminster.

Vice President: William Y. Takahashi, Boulder.

Treasurer: Dwight C. Dawson, Colorado Springs.

Constitutional Secretary: James A. Henderson, Denver.

Delegates to the American Medical Association: Ray G. Witham, Craig, Dec. 31, 1972; Gatewood Milligan, Englewood, Dec. 31, 1971; Robert E. McCurdy, Denver, Dec. 31, 1971.

Alternate Delegates to the American Medical Association: Marcia Curry, Denver; R. Neil Chisholm, Denver; John M. Wood, Englewood.

Speaker, House of Delegates: Kenneth A. Kahn, Boulder.

Vice Speaker, House of Delegates: James A. Philpott, Denver,

Foundation Advocate: Charles B. Kingry, Denver.

Historian: Richard W. Whitehead, Denver.

Historian Emeritus: Bradford Murphey, Denver.

Scientific Editor for Colorado and Chairman of the Editorial Board, Rocky Mountain Medical Journal: Douglas W. Macomber, Denver.

Assistant Scientific Editor for Colorado, Rocky Mountain Medieal Journal: Carl H. McLauthlin, Denver.

Executive Secretary: Mr. Donald G. Derry, 1809 E. 18th Avenue, Denver, Office Telephone (303) 399-1222.

Montana Medical Association

OFFICERS—1970-71—Terms of officers and committeemen expire at the annual meeting in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Meeting.

President: Richard L. Peterson, Hamilton.

President-elect: John Pfaff, Jr., Great Falls.

Vice President: Hollis K. Lefever, Lewistown.

Secretary-Treasurer: Robert P. Yost, Missoula.

Assistant Secretary-Treasurer: Wilfred S. Miller, Whitefish.

Delegate to the A.M.A.: Herbert T. Caraway, Billings.

Alternate Delegate to the A.M.A.: Mark B. Listerud, Wolf Point.

Executive Committee: Richard L. Peterson, Hamilton; John Pfaff, Jr., Great Falls; Hollis K. Lefever, Lewistown; Robert P. Yost, Missoula; Wilfred S. Miller, Whitefish; Herbert T. Caraway, Billings; Mark B. Listerud, Wolf Point; Oscar A. Swenson, Kalispell.

Scientific Editor, Rocky Mountain Medical Journal: Gerald A. Diettert, Missoula.

Associate Editor, Rocky Mountain Medical Journal: Mr. L. Russell Hegland, Billings.

Executive Secretary: Mr. L. Russell Hegland, 1236 North 28th St. (P.O. Box 1692), Billings 59103. Telephone, (406) 252-6673.

Nevada State Medical Association

OFFICERS—1970-71—Terms of officers and committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: V. E. Elliott, Fallon.

President-elect: William D. O'Gorman.

Secretary-Treasurer: John P. Sandle, Reno.

Delegate to A.M.A.: Leslie A. Moren, Elko.

Alternate Delegate to A.M.A.: Kenneth E. Turner, Las Vegas.

Immediate Past President: V. A. Salvadorini, Reno.

Scientific Editor for Nevada Rocky Mountain Medical Journal: Harry J. McKinnon, Las Vegas.

Assistant Scientific Editor for Nevada, Rocky Mountain Medical Journal: Wesley W. Hall, Reno.

Associate Editor, Rocky Mountain Medical Journal: Mr. Nelson B. Neff, Reno.

Executive Secretary: Mr. Nelson B. Neff, 3660 Baker Lane, Reno.

New Mexieo Medical Society

OFFICERS—1970-71—Terms of officers and committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: Harry D. Ellis, Santa Fe.

President-Elect: Vaun T. Floyd, Albuquerque.

Vice President: Don R. Clark, Roswell.

Secretary-Treasurer: James R. Gay, Albuquerque.

Immediate Past President: Hugh B. Woodward, Albuquerque.

Speaker, House of Delegates: Ronald V. Dorn, Albuquerque.

Vice Speaker, House of Delegates: William J. Hossley, Deming.

Delegate to A.M.A.: Allan L. Haynes, Clovis.

Alternate Delegate to A.M.A.: Emmit M. Jennings, Roswell.

Scientific Editor for New Mexieo, Rocky Mountain Medical Journal: Marcus J. Smith, Santa Fe.

Assistant Scientific Editor for New Mexico, Rocky Mountain Medical Journal: William S. Curran, Albuquerque.

Associate Editor for New Mexieo, Rocky Mountain Medical Journal: Mr. Ralph R. Marshall, Albuquerque.

Executive Secretary: Mr. Ralph R. Marshall, 3010 Monte Vista Blvd., NE, Albuquerque; Telephone (505) 265-8494.

Assistant Executive Secretary: Mr. Thomas A. Bodnar, Albuquerque.

Utah State Medical Association

OFFICERS—1970-71—Terms of officers and committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: Russell M. Nelson, Salt Lake City.

President-Elect: Merrill C. Daines, Logan.

Past President: John H. Rupper, Provo.

Honorary President: A. M. Okelberry, Salt Lake City.

Secretary: Allan H. Barker, Salt Lake City.

Treasurer: Ralph C. Richards, Salt Lake City.

Delegates to A.M.A.: Drew M. Petersen, Ogden; Homer E. Smith, Salt Lake City.

Alternate Delegates to A.M.A.: Merrill C. Daines, Logan; Alan P. Macfarlane, Salt Lake City.

Speaker, House of Delegates: William R. Christensen, Granger.

Vice Speaker, House of Delegates: Wm. Knox Fitzpatrick, Salt Lake City.

Scientific Editor for Utah, Rocky Mountain Medical Journal: Alan E. Lindsay, Salt Lake City.

Assoeiate Editor for Utah, Rocky Mountain Medical Journal:: Mr. Hoyt W. Brewster, Salt Lake City.

Executive Secretary: Mr. Hoyt W. Brewster, 42 South Fifth East St., Salt Lake City. Telephone (801) 355-7477.

Wyoming State Medical Society

OFFICERS—1970-71—Terms of officers and committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: Fenworth M. Downing, Sheridan.

President-elect: William G. Erickson, Lander.

Vice President: Donald F. Mahnke, Casper.

Secretary: Paul R. Yedinak, Rock Springs.

Treasurer: Donald B. Hunton, Cheyenne.

Delegate to A.M.A.: Harlan B. Anderson, Casper.

Alternate Delegate to A.M.A.: Thomas A. Nicholas, Buffalo.

Speaker of the House: Goode R. Cheatham, Jr., Casper.

Vice Speaker of the House: Norman R. Black, Cheyenne.

Scientific Editor for Wyoming, Rocky Mountain Medical Journal: Francis A. Barrett, Cheyenne.

Associate Editor for Wyoming, Rocky Mountain Medical Journal: Mr. Robert Smith, Cheyenne.

Executive Secretary: Mr. Robert Smith, P.O. Box 1367, Cheyenne, Wyoming 82001. Telephone (307) 632-5525.

INDEX TO ADVERTISERS

Abbey Rents 63

Abbott Laboratories
Erythrocin 56-58

Arch Laboratories
Dicarbosil 3

Broadmoor Hotel 51

Burroughs Wellcome Company
Neosporin 5

Campbell Soup Company
Asparagus 49

Colorado College of Medical and Dental Assistants 63

Denver Optic Company 63

Emory John Brady Hospital 61

Lederle Laboratories
Achrostatin 62

Lilly, Eli & Company
Cordran Tape 20

McNeil Laboratories
Parafon Forte 9

Mutual of Omaha 19

National Drug Company
Tepanil 35
Quinamm 36
Orenzyme 53
AVC 54

Newton Optical Company 16

Picker Medical Products 60

Practice Management Services 55

Publishers Press/Monitor Publications 16

Robins, A. H. and Company
Phenaphen 17
Dimetapp 18-19

Roche Laboratories
Efudex ..... Cover II, page 1
Librax 10-11
Noludar 15, 34
Valium ..... Cover IV

Searle, G. D. & Company
Demulen/Ovulen ..... 66, Cover III

Sierra Madre Development Company 63

Stuart Pharmaceuticals
Division of Atlas Chemical Industries, Inc.
Mylanta 8

Wes Segelke and Company 61

An excerpt from No. 1 of a new series from Searle*

"The Ecology of Birth Control"

75 million more Americans—what impact on health care?

Because of a declining birthrate in the United States—attributable in no small measure to the widespread use of contraceptives—our population in thirty years is expected to be *only* 280 million, while the world population is expected to double, reaching 7 billion.

But the word "only" has an ironic ring to ecologists who warn of cities resembling overcrowded, contaminated rat colonies, of respiratory and mental diseases reaching epidemic proportions and of a health-care community virtually overwhelmed by the burden.

The global consequences may be no less devastating. Ecologists estimate that every American has roughly fifty times the negative impact on the Earth's life-support systems of, say, a citizen of India. In these terms, adding 75 million Americans would be equivalent to adding 3.7 billion Indians to the world population.

**For the complete brochure, and others in the series as they appear, please write to Searle or ask your Searle representative.* Explored in the forthcoming issues will be the role of birth control on family pressures and its effects on the family; the influences of poverty, ethnic factors and marital status; its role in illness, its genetic implications and its effects on the emotional and behavioral life of the individual.

MDS

Library
College of Physicians
19 South 22nd Street
Philadelphia, Pennsylvania 1910

LIBRARY OF THE
COLLEGE OF PHYSICIANS
OF PHILADELPHIA
JUN 22 1971

Rocky Mountain Medical Journal

COLORADO
MONTANA
NEVADA
NEW MEXICO
UTAH
WYOMING

June, 1971

VOLUME 68 • NUMBER 6

Efudex®

(fluorouracil)
cream/solution

In the treatment of solar/actinic keratoses–

An alternative to cold, fire and steel

2/23/68
Before treatment with 5% 5-FU cream. Patient R. G., 78 years old, shows extensive skin changes due to weathering and severe solar/actinic keratoses.

3/26/68
Following one month of therapy. Intense erythematous reaction is seen at sites of keratoses. Normal skin has not reacted. Some areas which had reacted initially have undergone healing despite continued topical application of 5% 5-FU.

6/11/68
Ten weeks after discontinuance of therapy. All areas have healed completel Residual mild erythema remains in som areas. This patient also had seborrheic keratoses which, as expected, have not reacted. There is no evidence of residual lesions or recurrences.

ROCHE
Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

An alternative to conventional therapy

Efudex (fluorouracil) offers the physician a topical alternative to cryosurgery, electrodesiccation and cold-knife surgery in the treatment of solar/actinic keratoses. It is effective, comparatively inexpensive and especially well suited for treatment of these multiple lesions. Important, too, is the highly desirable cosmetic result. Clinical experience demonstrates that treatment with Efudex results in an extremely low incidence of scarring.*

Highly effective

In clinical trials, depending on the dosage form and strength used, complete involution occurred in 77 to 88 per cent of lesions following treatment. The rate of recurrence was low, ranging from 1.7 to 5.6 per cent up to a year after completion of therapy. When new lesions appeared, repeated courses of Efudex therapy proved effective.*

Predictable therapeutic response

Two to four weeks constitutes a typical course of Efudex therapy. The response is usually characteristic and predictable. After three or four days of treatment, erythema begins to appear in the area of keratoses. This is followed by an intense inflammatory response, scaling and occasionally moderate tenderness or pain. The height of the inflammatory reaction generally occurs two weeks after the start of therapy, and then begins to subside as treatment is stopped. Within two weeks of discontinuing medication, the inflammation is usually gone. A mild erythema may remain for two or three months before gradually receding. Since this response is so predictable, lesions which do not respond should be biopsied.

Two strengths—two dosage forms

Efudex is available as a 2% or 5% solution or as a 5% cream. It is applied twice daily by the patient with a nonmetal applicator or suitable glove.

Before prescribing Efudex, however, two important considerations: First, please consult the complete prescribing information for precautions, warnings and adverse reactions. Second, advise the patient that treated lesions should respond with the characteristic but transient inflammation. A positive sign that Efudex is working for them.

*Data on file, Hoffmann-La Roche Inc., Nutley, New Jersey.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

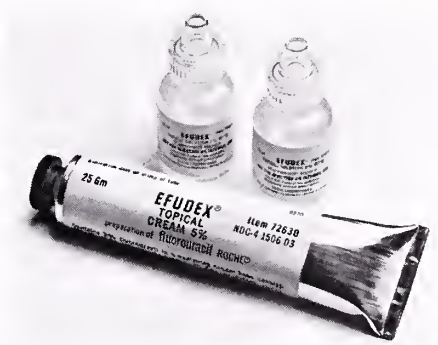
Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Efudex Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)-aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Efudex Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing-cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).



new
Efudex®
(fluorouracil)
cream/solution

ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

JUNE 1971

Volume 68, Number 6

Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222 (area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204

Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

Address all manuscripts, organization and other news items relating to editorial content to appropriate state editor, see below.

Editorials

7 RUMBLINGS FROM "DOWN UNDER"

Articles

9 PRE-PREMEDICAL EXPERIENCE FOR HIGH SCHOOL STUDENTS — *George J. Hill, II, MD, Denver, Colorado*

12 ELECTROSHOCK, EFFETE OR ESSENTIAL? — *Richard L. Condé, MD, Colorado Springs, Colorado*

21 EXCISION OF SPINAL CORD ARTERIOVENOUS MALFORMATION — *O. Howard Reichman, MD and Bruce F. Sorensen, MD, Salt Lake City, Utah*

24 THE ADDICTED PHYSICIAN — *Franklin G. Osberg, MD, Pueblo, Colorado*

29 CARCINOMA OF THE CECUM — *Robert M. Cardelli, MD, Colorado Springs, Colorado*

33 FREUD IN THE AMERICAN SCENE — *Horace E. Campbell, MD, Denver, Colo.*

37 THYMECTOMY IN MYASTHENIA GRAVIS — *Albert J. Kukral, MD and Donald W. Ryan, MD, Denver, Colo.*

43 DEPARTMENT OF COMMUNITY AND FAMILY MEDICINE — *C. Hilmon Castle, MD and Robert Kane, MD, Salt Lake City, Utah*

Organization

54 COLORADO

55 MONTANA

60 PROGRAM—25TH ANNUAL ROCKY MOUNTAIN CANCER CONFERENCE

OUR COVER PHOTO

Longs Peak and Nymph Lake — Rocky Mountain National Park — Colorado.

Features

4 LETTERS TO THE EDITOR

4 BOOK CORNER

49 POTPOURRI — *Compiled by Andrew M. Babey, MD, Las Cruces, New Mexico*

55 MEDICAL SCHOOL NOTES

58 OBITUARIES

62 MEETINGS

64 WANT ADS

67 INDEX TO ADVERTISERS

EDITORIAL BOARD

Colorado: Douglas W. Macomber, M.D., Scientific Editor, 1800 High St., Denver (Chairman of the Board); Carl H. McLauthlin, M.D., Assistant Scientific Editor, 510 Republic Bldg., Denver.

Montana: Gerald A. Diettert, M.D., Scientific Editor, 501 W. Broadway, P. O. Box 1307, Missoula, Montana 59801; L. Russell Hegland, Associate Editor, 1236 North 28th Street, Billings.

Nevada: Harry J. McKinnon, M.D., Scientific Editor, 3196 Maryland Pkwy. S., Las Vegas; Wesley W. Hall, M.D., Assistant Scientific Editor, 607 N. Arlington Ave., Reno; Nelson B. Neff, Associate Editor, 3660 Baker Lane, Reno.

New Mexico: Marcus J. Smith, M.D., Scientific Editor, Coronado Bldg., Santa Fe; William S. Curran, M.D., Assistant Scientific Editor, 920 Stanford NE, Albuquerque; Ralph R. Marshall, Associate Editor, 3010 Monte Vista Blvd., NE, Albuquerque.

Utah: Alan E. Lindsay, M.D., Scientific Editor, 699 East South Temple, Salt Lake City; Hoyt W. Brewster, Associate Editor, 42 South Fifth East Street, Salt Lake City.

Wyoming: Francis A. Barrett, M.D., Scientific Editor, 1616 E. 19th St., Cheyenne; Robert Smith, Associate Editor, P. O. Box 1387, Cheyenne.

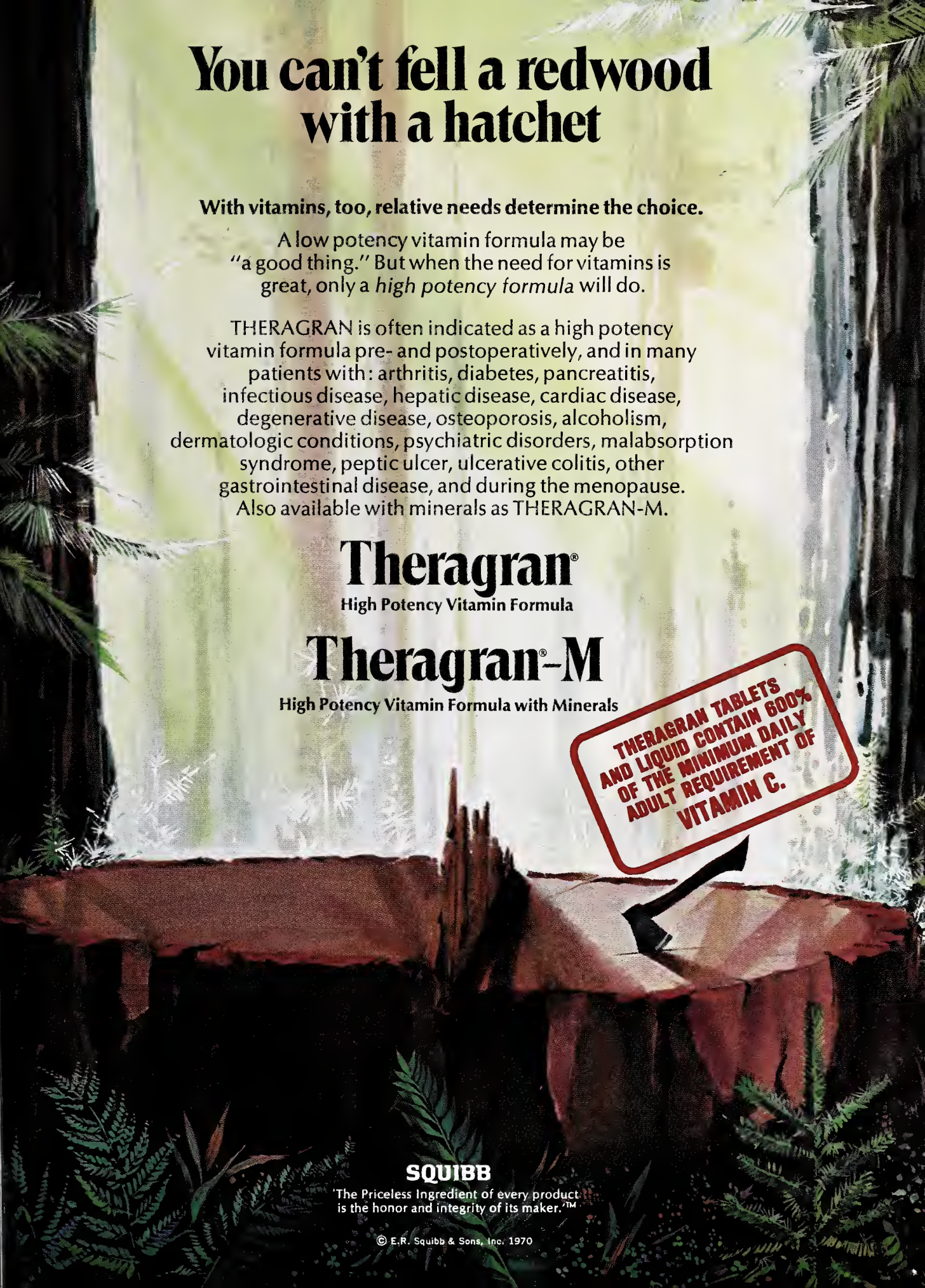
Donald G. Derry, Managing Editor

Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations: It is the Official Journal of the Rocky Mountain Medical Conference and those medical societies who are represented on the Editorial Board listed above.

Advertising: National representative: State Journals West, 693 Sutter Street, San Francisco, California 94102.
Subscription: $7.00 per year in advance, postpaid in the United States and its possessions; single copy 60c plus postage. Subscription is included in medical society dues of sponsoring state medical organizations.

Copyright: This Journal is copyright, 1971, by the Colorado Medical Society. Requests for permission to reproduce anything from the columns of this Journal should be addressed to the Journal Office.

Second class postage paid at Denver, Colorado


You can't fell a redwood with a hatchet
With vitamins, too, relative needs determine the choice.
A low potency vitamin formula may be "a good thing." But when the need for vitamins is great, only a high potency formula will do.
THERAGRAN is often indicated as a high potency vitamin formula pre- and postoperatively, and in many patients with: arthritis, diabetes, pancreatitis, infectious disease, hepatic disease, cardiac disease, degenerative disease, osteoporosis, alcoholism, dermatologic conditions, psychiatric disorders, malabsorption syndrome, peptic ulcer, ulcerative colitis, other gastrointestinal disease, and during the menopause. Also available with minerals as THERAGRAN-M.
Theragran®
High Potency Vitamin Formula
Theragran®-M
High Potency Vitamin Formula with Minerals
THERAGRAN TABLETS AND LIQUID CONTAIN 600% OF THE MINIMUM DAILY ADULT REQUIREMENT OF VITAMIN C.
SQUIBB
"The Priceless Ingredient of every product is the honor and integrity of its maker."™
© E.R. Squibb & Sons, Inc. 1970

To The Editor:

All doctors will agree that cancer is a scourge of mankind, one which should be wiped from the face of the earth. Each year there are 635,000 new victims of this disease and the real tragedy is that many of the deaths from cancer are needless. I refer to the one out of two patients we could save by early diagnosis and prompt treatment.

Statistics on the cancer that "nobody talks about" are a prime example of my point. Annually there are 73,000 new cases of colo-rectum cancer diagnosed in the United States and 44,000 deaths each year from this particular kind of cancer. Only 40-50 per cent of colo-rectum cancer patients pass the five-year survival mark. Yet as high as 75 per cent of these patients could be cured if the disease is found early and treated promptly and properly. Ninety per cent of the diseases involving the large bowel will show some evidence discoverable by proctosigmoidoscopy.

Unfortunately too few lay people know about the "procto" examination and of those who do know about it, many fear it. Add to this the fact that too few doctors feel comfortable making the exam and therefore do not do it as a part of a regular physical.

I believe it is up to the members of the medical community to make this test as well known and as acceptable as a chest x-ray. It is only through an educational program that the doctors conduct with their patients that we can get "Mr. Average Citizen" to insist that the procto be made a part of his regular physical examination.

It is within our power to change the statistics on this kind of cancer and so avoid having to tell a patient that he has terminal cancer of the colon or rectum. I'd like to see all doctors include this examination as a matter of course in every patient of 40 years and older. I'd like to see the cure rate rise to the 75 per cent which we know is possible if we can influence all of our patients to make the procto exam as routine as the chest x-ray.

Very truly yours,

Kenneth C. Sawyer, M.D.
Denver

THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

Alzheimer's Disease and Related Conditions: By Ciba Foundation. London, 1970, Churchill. 316 p. Gift.

AMA Drug Evaluations 1971: By American Medieal Association. Chicago, 1971, American Medical Association. 968 p. Price: $15.00.

Broad Range of Use of Diphenylhydantoin: By Samuel Bogoch. New York, 1970, Dreyfus Medical Foundation. 169 p. Gift.

Cecil-Loeb Textbook of Medicine: Edited by Paul Beeson and Walsh McDermott. 13th ed. Philadelphia, 1971, Saunders. 2 vols. Price: $32.50.

Cervical Syndrome: By Ruth Jackson. 3rd ed. Springfield, Ill., 1966, Thomas. 333 p. Price: $10.50.

Contact Lens Practice and Patient Management: By Irving P. Filderman and Paul F. White. Philadelphia, 1969, Chilton. 558 p. Price: $19.95.

Craft of Surgery: Edited by Philip Cooper. 2nd ed. Boston, 1971, Little, Brown. 3 vols. Price: $75.00.

Dictionary of Medical Syndromes: By Sergio Magalini. Philadelphia, 1971, Lippincott. 591 p. Price: $16.00.

Essentials of Roentgen Interpretation: By Lester W. Paul and John H. Juhl. 2nd ed. New York, 1970, Hoeber. 902 p. Price: $30.00.

Gradwohl's Clinical Laboratory Methods and Diagnosis: Edited by Sam Frankel and others. 7th ed. St. Louis, 1970, Mosby. 2 vols. Price: $59.50.

International Cardiology, v. 2 (Cardiovascular Clinics): Edited by Albert N. Brest. Philadelphia, 1971, Davis. 301 p. Price: $22.50.

Molecular Properties of Drug Receptors: By Ciba Foundation. London, 1970, Churchill. 298 p. Gift.

Pharmacology and Therapeutics: By Arthur Grollman and Evelyn Frances Grollman. 7th ed. Philadelphia, 1970, Lea. 1038 p. Price: $19.50.

Physiological Basis of Medical Practice: By Charles H. Best and Norman B. Taylor. 8th ed. Baltimore, 1966, Williams and Wilkins. 1793 p. Price: $17.00.

Primer of Water, Electrolyte and Acid-Base Syndromes: By Emanuel Goldberger. 4th ed. Philadelphia, 1970, Lea. 436 p. Price: $8.50.

Progress in Neurology and Psychiatry, v. 25: Edited by E. A. Spiegel. New York, 1970, Grune and Stratton. 495 p. Price: $28.75.

Regional Anesthesia, v. 2 (Clinical Anesthesia): Edited by John J. Bonica. Philadelphia, 1969, Davis. 258 p. Price: Set price.

Sensorineural Hearing Loss: By Ciba Foundation. London, 1970, Churchill. 358 p. Gift.

Synopsis of Obstetrics: By Charles E. McLennan. 8th ed. St. Louis, 1970, Mosby. 496 p. Price: $9.50.

Taste and Smell in Vertebrates: By Ciba Foundation. London, 1970, Churchill. 402 p. Gift.

Textbook of Neurology: By Houston H. Merritt. 4th ed. Philadelphia, 1967, Lea. 844 p. Price: $15.00.

Picture of low back pain

treated with Parafon Forte® TABLETS

Paraflex® (chlorzoxazone)* 250 mg.
Tylenol® (acetaminophen) 300 mg.

Parafon Forte tablets help to relieve pain, restore mobility... stop pain-spasm feedback

Here is why. PARAFON FORTE provides:

a nonsalicylate analgesic equal to aspirin for relief of pain,[1,2] yet unlikely to cause the gastric irritation[2,3] or increased bleeding time[4] associated with aspirin therapy.

and a skeletal muscle relaxant shown in extensive clinical studies to be useful in a variety of low back disorders[5-7] ...but which is not an antihistamine or tranquilizer derivative and is unlikely to produce a tranquilizing or sedative effect.[8]

Prescribe PARAFON FORTE for effective spasmolysis and analgesia in acute sprains, strains and myalgias of the lower back, including acute exacerbations of chronic conditions. Your patients will appreciate the restored comfort and freedom of movement it usually provides.

McNEIL LABORATORIES, INC., FT. WASHINGTON, PA. 19034

McNEIL

Contraindications: Sensitivity to either component. ***Warnings:*** *Usage in Pregnancy*—Use in woman of child-bearing potential only when potential benefits outweigh possible risks. ***Precautions:*** Exercise caution in patients with known allergies or history of drug allergies. If a sensitivity reaction or signs or symptoms suggestive of liver dysfunction are observed, the drug should be stopped. ***Adverse Reactions:*** Occasionally, drowsiness, dizziness, lightheadedness, malaise, overstimulation or gastrointestinal disturbances may be noted; rarely, allergic-type skin rashes, petechiae, ecchymoses, angioneurotic edema or anaphylactic reactions. In rare instances, *Paraflex* (chlorzoxazone) may possibly have been associated with gastrointestinal bleeding. While *Paraflex* (chlorzoxazone) and chlorzoxazone-containing products have been suspected as being the cause of hepatic toxicity in approximately eighteen patients, it was not possible to state that the dysfunction was or was not drug induced. ***Usual Adult Dosage:*** Two tablets q.i.d. ***Supplied:*** Scored, light green tablets, imprinted "McNEIL" —bottles of 100.

References: **1.** Batterman, R. C., and Grossman, A. J.: Fed. Proc. *14*:316, 1955. **2.** Goodman, L. S., and Gilman, A., ed.: The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970. **3.** Vickers, F. N.: Gastroint. Endosc. *14*:94, 1967. **4.** Mielke, C. H., Jr., and Britten, A. F. H.: New Engl. J. Med. *282*:1270, 1970 (Corresp.). **5.** Kestler, O. C., and Gyurik, J.: Industr. Med. Surg. *21*:372, 1962. **6.** Forster, S., et al.: Amer. J. Orthop. *2*:285, 1960. **7.** Data on file, McNeil Laboratories, Inc. **8.** Friend, D. G.: Clin. Pharmacol. Ther. *5*:871, 1964.

*U.S. PATENT NO. 2,895,877

Now available for your prescribing needs

Cordran® Tape

Flurandrenolide Tape (4 mcg. per sq. cm.)

Additional information available upon request • Eli Lilly and Company, Indianapolis, Indiana 46206

000121

Lilly

Rumblings from "Down Under"

A TRIP TO THE remote South Seas is an educational experience, in many ways. People of Australia, New Zealand and Tasmania are much like Americans. Also, their country resembles America. Australia is approximately the size of the United States, and New Zealand about the size of California. There are many similarities geographically in all of the islands. Lake Wakatipu and other areas of the southern island of New Zealand remind one of the beauties of western United States, particularly northwest Wyoming. Mt. Cook and Milford Sound match the Grand Tetons and Lake Yellowstone. There are also ghost towns where gold fever of the late 1800's paralleled our own. Arrowtown has all the old mines, machinery, bars, old jails and houses of fame once known as ill. It was molded by similar people to our own, impelled by gold-begotten fever—obviously symptomatically the same in any hemisphere. These, plus hospitable friendly people, are not the only similarities which make visiting medical men from the United States feel at home.

At hand are seven or eight articles plucked from their newspapers during February and March. The reporters are blasting the doctors and hospitals of Australia and New Zealand. The articles are particularly remindful of home when talking about the AMA (Australian Medical Association). Editorials in this Journal during the past several years have commented upon the frequency that columnists criticize American doctors, hospitals, and medical care in general. Much of the adverse publicity dates from the inception and evolution of Medicare. People forget that our profession warned the country against it but, in view of its failures and exorbitant expenses, they blame the doctors and the hospitals. If we in America have felt unique in being abused by newspapers and magazines, let us have a glimpse at the parallel situation prevailing in Australia and New Zealand. The several articles, mentioned above, could have been plucked from our own newspapers, particularly with reference to their AMA.

Here are typical headlines: "Bitter Medicine," "Doctors Rebel," "Limited Doctor Plan Threatened," "Lack of Hospital Specialists 'Crying Shame'." There are two or three sides to the friction between government and profession and, unfortunately, even within the profession. The Australian Medical Association has recommended a 15 per cent fee increase, a "cost of practice" increase. In one area, doctors have ignored the AMA partly because certain industries have had difficulties, which they term "a deeper than usual sag in the middle" and money is tight. It is to their credit that those doctors say that their costs have not risen 15 per cent. They objected to upsetting some 16,000 people whom they serve and know as individuals. Many other factors are being aired as part of deliberations between people and labor, between labor and the medical profession, and between the government and everybody—banana crops, the tourist industry, the hospitals and more or less indifferent help they must employ, attracting of new well-trained doctors, retirement of antidated equipment, increased taxation, etc. Obviously it is not a private fight and almost anybody can get into it. In addition to the headlines, sub-headings and captions on photographs of doctors at work (an operating room scene) are interesting and reminiscent of home: "The doctor as hero. But arguments over fees may tarnish the image," "The Australian Medical Association's recommendations for increased fees have been condemned in correspondence to the Medical Journal of Australia," "The President of the NSW branch of the Australian

Medical Association, Dr. E.S.A. Meyers, accused the Prime Minister yesterday of insulting doctors." The latter referred to the statement of the Prime Minister, Mr. Gorton, of threatening the Australian Medical Association with a "participating doctor" scheme. He told the House of Representatives that such a scheme could be used by the Government to see that patients and taxpayers were not "mulcted."

Apparently the Prime Minister warned an AMA delegation that a National Health Scheme would require participating doctors to tell patients in advance if they proposed charging more than the common fee, and charges of non-participating doctors would not be eligible for medical benefits. It is not surprising that Dr. Meyers and the Federal President of the AMA, Dr. R. H. MacDonald, protested the word "mulcted" being applied to doctors' fees. Said Dr. Meyers, "Mr. Gorton chooses to insult my profession at a time when he is seeking its cooperation." Furthermore, "nor can we accept the role of whipping boy for the current crisis in which the Government finds itself." And so it goes, plus costs of laboratory tests and x-ray services, hospital beds and operating rooms, plus longer working hours and restless disloyal employees.

One article in The Sydney Morning Herald started out, "If war is too important a matter to be left to the generals, health is too important a matter to be left to the doctors." This philosophy appears to be the basis of health schemes in Australia, New Zealand, and Britain. They did not say United States. Perhaps this was an oversight. The story unfolds with comment upon Government in subsidized private medical and hospital insurance avowed to help (with public money) those who help themselves by insuring against rising costs of medical and hospital treatment. This leads into the question of whether the "rights" of the doctors to run their own profession can continue. "Probably not for much longer," says the columnist. Then follows the key to whole business—now that great sums of public money are involved in making medical and hospital care available to almost everybody, the Government must increasingly call the tune! And then, the sooner the doctors get used to this reality the better will be the present health scheme or any substitute for it. At least so they say! Prime Minister Gorton apparently aimed to put teeth in the scheme by enforcing the "most common fee" principle that participating doctors would accept or reject. His unfortunate term "mulcted" was an unpopular expression. However, it connotes the popular disrespect of doctors and gross misunderstanding of what it takes to qualify them for the responsibilities with which they are beset. A statement in the article entitled "Bitter Medicine" was that "the Government is losing patience with the whole cumbersome and unsatisfactory system (for which it must bear its own share of responsibility) of reviewing fees." Furthermore, with public money and public interest involved, its view must prevail. How much like our government, our AMA, and our bickering!

This editorial is not designed to analyze the practice of medicine in another part of the world or to comment with any authority. The interesting point we are making is that any member of our profession spending a month or more in a part of the world many thousands of miles away, "down under" in another hemisphere, is made to feel very much at home amid an environment strikingly like our own. Its spaces are wider open, with fewer people and more sheep, with cities as big and towns as small, with people as friendly and colleagues as hospitable as our own. And their newspapers and magazines are just as ruthless in tearing us down and criticizing our institutions. Even their AMA joins ours in a fraternal way in facing the unrest which is the order of the day in a society rumbling with discontent.

Pre-premedical experience for high school students*

George J. Hill, II, MD, Denver

An extracurricular pre-medical program for well-qualified high school students was developed and utilized for a three-year period. Fifty students from seven schools were exposed to basic science and clinical medicine by a faculty of 38 physicians and scientists. Thirty of the fifty classes utilized patients for teaching material, and live animals were used in five laboratory exercises. Classes met, without untoward incident, at the bedside, in operating rooms, and in the emergency room. An interest in medicine was enhanced and solidified, and thereby career counseling commenced successfully.

HIGHLY MOTIVATED, well qualified high school students are now able to obtain a penetrating view of medicine in a program jointly sponsored by physicians' organizations and the Boy Scouts of America.

In 1966, the National Council of the Boy Scouts agreed to expand its programs for high school students in two significant respects.[1] First, new organizational units would be established for young people with interests in professional specialties such as merchandising, law, engineering and medicine. Second, membership in the units would be open to girls as well as boys of high school age. The idea of this new program was attractive, and local Councils immediately invited sponsoring institutions to organize specialty units.[2] Approximately 250,000 high school boys are now registered in the 20,000 chartered Explorer Posts, and approximately 500 of these units are specialty posts which focus on medicine and allied health fields.[3] At least 50 per cent of the members of each local unit are young men, and the young women who participate must be members of a national girls' organization.

The Denver Area Council, BSA, invited the University of Colorado Medical Center to sponsor a Medical Specialty Post in April 1967. This Post has now completed its third year of academic activities. Medical Explorer Post 268 is one of 70 chartered units for high school students in the Denver Council. Four of these units are professional specialty units. The other specialty units are units sponsored by the Colorado Veterinary Medical Society, a Merchandising Post sponsored by Sears, Roebuck and Co., and a Data Processing Post sponsored by the Gates Rubber Co.

The UCMC Advisory Committee was composed of nine members of the full time faculty, plus a pediatrician from the Denver School Board. The Departments of Surgery, Medicine, Pediatrics and OB/Gyn were represented, in addition to two Associate Deans. The members agreed that the purpose of the Post would be to provide a brief, intensive exposure to medicine for small groups of high school students who were seriously considering a career in medicine. The Committee agreed that exposure to paramedical careers and other sciences would not be a primary goal of the Post. A recommendation from a high school science teacher and an overall average of B or better were requisites for admission to the unit.

*From the University of Colorado Medical Center, 4200 E. 9th Avenue, Denver. The author is Advisor, Explorer Post 268, Denver, Boy Scouts of America.

The membership of the UCMC Medical Post was initially recruited from the Biology and Pre-Medical Clubs of the Denver metropolitan high schools through personal visits by the Post advisor. Spontaneous enrollment subsequently provided an active membership of approximately 20-25 students. This appears to be the largest group which can effectively participate in bedside teaching. Denver has nine public high schools. Six of these, and one suburban high school, have been represented by membership in the Post. Of the 50 members during the past three years, 31 were boys and 19 were girls. Seventeen of the members joined as sophomores, 17 as juniors and 16 as seniors. Only ten of the members withdrew prior to graduation from high school, and six of the ten sophomore charter members remained for three years. All of the seniors have been accepted in colleges or universities, and many are known to be continuing in premedical courses.

The programs for the unit were provided by members of the Committee and by invited guests, from 7:30 to 9:00 p.m. twice a month. Following a short business meeting, the physician-in-charge was given full opportunity to develop his subject in whatever way he chose. The programs were designed to utilize the most interesting topics and the best speakers, rather than to cover the entire field of medicine in a didactic fashion. Patients were presented at 30 of the 50 meetings which have been held. Patients were seen in the conference room, at the bedside, in the operating room or in the emergency room. Laboratory demonstrations with live animals were utilized on five occasions. Seven hospitals were visited, and 38 different physicians participated in the programs.

Clinical activities of the unit were carried out as if the students were first year medical students instead of high school students. Patients of all ages with acute or chronic illnesses were presented—from sick newborn babies to a 90-year-old man with a colostomy. The problems presented ranged from liver and kidney transplants to chronic lung disease and alcoholism with cirrhosis. Patients were seen before, during and after surgery, for diseases as diverse as mitral stenosis, acute cholecystitis and peptic ulcer. Unusual problems were also demonstrated, such as arm re-implantation and leprosy. The students saw the acute management of a man who suffered a gunshot wound of the cervical spine, and they visited him two months later on the paraplegic ward. They saw patients with cancer, drug overdosage, and massive trauma. They saw movies which demonstrated breast cancer, pregnancy, and heart surgery. They discussed general practice, cardiopulmonary research and military medicine with specialists in these fields. The Committee and the Post also hosted visits from two other Medical Specialty Posts—one from Fort Collins, and the other from Colorado Springs.

The social and service functions of the group were increasingly active, and appeared to be an important factor in the viability of the unit. Elections of student officers were held twice a year. The students decided that the officers must each attend a different high school. Only seven of the boys had previously been Scouts and only two of the girls had previously been members of national girls organizations. Initially the group was extremely reluctant to accept an identification with the Boy Scouts of America. The identification eventually became stronger, following attendance at an intercollegiate football game at which all registered, uniformed Scouts were admitted free. The unit eagerly participated in the 1970 Council Scout Exposition. Its booth won a prize for excellence—children of all ages were given the opportunity to use stethoscopes for auscultation of their own hearts and those of small animals.

The interaction between patients and students was especially interesting, and provided the most valuable aspect of the program for many of the students. In a university hospital, patients readily accept the quiet presence of sympathetic young men and women, since groups of medical students are a common experience for them. The high school students were introduced as "young people who are going to be doctors." They were dressed in the uniform of their own selection —a short, starched white coat with name tag showing their name and the designation "Pre-Medical." All the men wore neckties, and their appearance was equal to or superior to that of most groups of medical students. On one occasion a consultant who saw the

group assumed he was in the wrong room. He had been asked to speak to a group of "high school students," and he didn't recognize them because they "looked like medical students."

In most instances, the students fulfilled their desire to learn more about medicine and many obtained part time work in hospitals. Their jobs included "candy striper" volunteers, kitchen work, orderlies, an ambulance attendant, a computer technician, a dog lab technician, animal handlers, and volunteer work in Guatemala with the Los Amigos program of their high school science clubs, and two were featured speakers on the educational TV program "Youth Speaks Out." One wrote an editorial for the community's evening daily paper, the "Denver Post." Several won scholarships to college, including the most prestigious local scholarship, the Helen Bonfils Award.

An unexpected benefit of the program was the opportunity to guide several of the students into other professional fields. In at least five instances, premedical fantasies were found to be unrealistic—doctors' sons clearly became unhappy in their contacts with patients. These students were grateful to have learned that they *didn't* want to become doctors.

The major achievements were, of course, intangible. Pleasant professional friendships were established, in spite of the gap in years between the teenaged students and the medical school professors. Patients enjoyed the opportunity to relate their stories and to receive rapt attention from an obviously interested group of young people. Through the acquaintances developed in the Post, students were able to find jobs and have personal letters of recommendation written to colleges. Many of these young people began to experience the acute excitement, the thrills, sadness, and challenges which are all part of the life of a physician. •

REFERENCES

[1] Anon. Young women and the exploring program. Scouting, pp. 12-13, May-June 1968.
[2] Anon. Explorers 1969. AMA News, p. 9. April 21, 1969.
[3] Anon. Medical Explorer Posts spur interest in hospital careers. Hospitals, J.A.H.A., 41:49-53, June 16, 1967.

Electroshock, effete or essential?*

Richard L. Condē, MD, Colorado Springs, Colo.

So much has been written in the popular press about the "hideous dangers" of electroshock, that a little balance appears to be indicated.

His name was Nels. He was 72. He had been on the Urology Service at a local hospital in Rochester, Minnesota. There he was found to have a mild degree of urinary retention due to prostatism and recurring fecal impaction, but the staff sent him to the Rochester State Hospital because he "had severe organic brain disease, probably due to arteriosclerosis." He was mute, had to have tube and intravenous feedings, had an indwelling catheter and would simply lie in bed with eyes closed or staring at the ceiling. In a sodium amytal interview Nels talked, without confusion, of his profound despair and wish to die, then lapsed into his previous condition.

After five electroshock treatments given on alternate days, he was up, dressed, eating and talking. After 10 treatments he was pleasant, conversational, had gained 20 pounds and was released to return home. One year later he had no symptoms of his illness and was "better than he has been in 10 years" according to relatives.

That was in 1950. Nels was one of the first cases of mental illness which I had seen treated with electroshock. Some of our professors in medical school had mentioned EST, but I had never witnessed the procedure during my training. I was very impressed by this near-miracle performed by electric shock therapy. I saw similar results produced many times with other patients with agitated paresis, catatonic schizophrenia, depressive neurosis, paranoid state, involutional melancholia, delirious mania, pseudoneurotic and pseudopsychopathic schizophrenia, endogenous depression, schizo-affective disorders, and with psychoses associated with senile, arteriosclerotic, post-neurosurgical, post- encephalitic and other disorders.

Sakel had introduced insulin coma therapy in 1933, but its best results were limited generally to young acute schizophrenics. Von Meduma in 1935 in Hungary had demonstrated the value of convulsions induced by camphor and later Metrazol in improving the condition of schizophrenics. Cerletti and Bini in Italy in 1937 successfully used electrically induced convulsions. Repeated induction of convulsions was found to be helpful in schizophrenic disorders. In reference to electroshock in schizophrenia, Kalinowsky states "—favorable reports come from workers who apply intense treatments —a sufficiently high number of treatments was imperative." Because convulsive therapy was found to be extraordinarily effective in the amelioration of affective disorders, it resulted in a radical reduction in the suicide rate in these patient groups, as well as in the schizophrenic group. Psychiatrists using adequate electroshock treatments report very few suicides in electroshock treated patients. Kalinowsky reports only one suicide in his 30 years' experience with shock-treated patients. In my personal practice I have had one suicide in an EST treated patient in 20 years.

*Delivered at the Colorado Psychiatric Society Meeting, Aspen, Colorado, August 1, 1970.
Reference: Pharmacological, Convulsive, and Other Somatic Treatments in Psychiatry. Kalinowsky—Hippius Grune & Stratton, 1969.

This patient had had an inadequate course of only five treatments for an agitated involutional depression.

Much of the published work with electroshock was done before the discovery of succinylcholine chloride in 1949 and before the general use of phenothiazines since 1954. The ictal cry, the hyperflexion with cracking noises in the joints, the back and long bone fractures, curare apnea and cyanosis, aspiration asphyxia, and missed seizures in the unanesthetized patient caused justifiable fears in patients, relatives, and observers. Seeing the patient fighting attendants, running, screaming, and having to be dragged to EST was not uncommon. In the post-ictal state, confusion, random movements, resistive or assaultive behavior was sometimes seen. Morbid dread of treatments and organic confusional states were distressing.

With the general use of phenothiazines and other anti-psychotic drugs and anti-depressant medications, the general atmosphere of fear of assaults, escapes, and suicides in the psychiatric hospitals has diminished. Paranoid distortions are dimmed and seldom acted upon. The use of pentothal sodium has precluded recollection of the electroshock procedure, except of the intravenous injection. Succinylcholine chloride has almost entirely prevented fractures and being short lasting, does not cause prolonged apnea. Withholding food and fluids and pre-treatment with atropine has made aspiration dangers negligible. Pre- and post-convulsive oxygenation prevent cyanosis. Seizures are modified to slight muscular contractions. Now the unilateral non-dominant placement of electrodes promises to greatly reduce post-treatment amnesia and organic confusion.

Several problems remain. The unreasoning dread of the idea of "shock," especially in the paranoid patient, continues. Unexplained fear of further treatments develops in some patients even though they recognize the neurotic nature of their feeling. Personnel who have only seen the violent unmodified electroshock therapy of the pre-phenothiazine era contribute to these feelings.

The control of a diversity of symptoms and syndromes may be illustrated by these cases from my personal practice.

CASE REPORTS

Case 1. Jim, aged 22, was admitted to the Emory John Brady Hospital on October 20, 1958, transferred from a private hospital. After failing in his first year in college because of his illness, he had been at a private hospital from 14 September 1955 to 8 December 1957. There he had received 13 non-convulsive electro-stimulation treatments and 52 sub-shock insulin treatments, Sparine, Thorazine, Marsilid and Dexedrine without any improvement. The electro-stimulation caused severe panic and he began to stutter and block until verbal communication was nearly impossible. An additional 10 months at another private hospital produced no relief of his distress. His diagnosis had been schizophrenia.

On admission to the Emory John Brady Hospital his condition was that described in 1955, with very slow movements, peculiar facial grimaces, pallor with suggestion of cyanosis of the periorbital tissues and nailbeds. He walked with a shuffle with toes pointed outwards. He would grimace and glance around the room frequently. It sometimes took him 20 minutes to give an answer to a simple question with many "well, well, no, no, yeah well," expressions between question and answer. He denied hallucinations though apparently responding to them. Delusions were not elicited. He developed severe dystonia on Compazine and Stelazine. Psycho-therapeutic interviews were impossible. Vesprin 25 mg. q.i.d. "took off the square corners." He needed much prodding and supervision to even get dressed in the morning. He was overheard talking to an imaginary George on one occasion. The overall impression was of a catatonic schizophrenia.

After much maneuvering and finally gaining the father's confidence, permission to give Electroconvulsive therapy was obtained and Jim received 56 electro-convulsive treatments given every other day at first and then at lengthening intervals. After the 30th treatment he began to be more assertive and spontaneous. Facial skin color and general muscle tone improved. The peculiar mannerisms and grimacing stopped. His gait became more normal. At the end of treatment he was still rather quiet and reserved, but was conversational, appropriate, reasonably prompt and self-sufficient, and he appeared tanned and healthy.

After six months on his grandfather's farm, he went to Northeastern Oklahoma State College where he graduated and has since been employed irregularly as a surveyor crew member. He is unmarried and lives with his father. His improvement has been sustained. He still takes Vesprin 25 mg. q.i.d.

The following cases illustrate an adolescent syndrome which will be discussed at length:

Case 2. Steve was a 15-year-old boy from Denver who was brought to the hospital by his adoptive parents on 30 January 1965 because the school psychologist stated that the patient needed "intensive psychotherapy" for his "severe hostility, morbid aggressiveness, and homicidal tendencies." He had maintained about a B average in grade school, but after the sixth grade had been receiving marginal grades and in the semester before admission had failed all courses except for a C in physical education. He had been arguing with teachers, was truant and in early January had been arrested and placed on probation for being in a "gang rumble" armed with a chain and a billy club. He was sullen, negativistic, and argumentative at home, insisting on doing as he pleased.

He was a pale, tense, muscular, hostile appearing young man who boasted that his hands had no feeling at times and that is why he liked to fight. A set of brass knuckles, a knife, and a rubber female doll with squeeze-inflatable breasts were found in his pockets on admission. He received Mellaril 25 mg. q.i.d. and was less tense, but was still very menacing in manner. The EEG showed a "focal cortical disturbance in the left posterior temporal area." He was somewhat sociable with several very delinquent youngsters but otherwise was evasive, or if approached he became tense and threatening. On April 8, 1965, a course of EST was started and he received 58 treatments through November 24, 1965. He gained 40 pounds. His color improved, he was much more relaxed and no longer hostile appearing. He did well until February, when he became more disturbed, broke his finger while "playing," ripped the molding off his door, appeared angry and pale. EST was restarted He received eight treatments on alternate days, improved rapidly, was discharged May 20, 1966 and returned for one out-patient treatment, for a total of 67 treatments. He returned to school for nearly a year and did average work, but was expelled for smoking. He has been helping his father with heavy work on their ranch and for the past seven months has been employed fulltime at a Denver manufacturing plant. He is also taking Junior College courses to complete his high school education. He has had only one contact with police while "jeeping" on private property with other boys. He has had a "steady" girlfriend for a year and plans to marry. The parents report he is reasonable and helpful. He continues to take Mellaril 25 mg. q.i.d.

Case 3. Larry, aged 18, was admitted to the Emory John Brady Hospital on May 6, 1967 after he had been arrested following an accident in which while drunk he had driven his car into several other cars. When apprehended by the police they found a loaded pistol on the seat and he was put in County Jail. He was bonded out by an unsavory friend before the father could get a court order, but was found and brought to the hospital.

He had a history of a number of psychiatric contacts since age 6. At another hospital, six months before his admission here, the diagnosis had been "Adjustment Reaction of Adolescence." He had been belligerent, defiant and negativistic since about age eight when he also developed adversive seizures culminating in grand mal attacks. At age 13 he was found to have diabetes mellitus. He did poorly in school in spite of good intelligence and neglected his health by refusing to stay on a diet and "forgetting" his medications. He had been placed in three different private schools, but did poorly in each although two of the schools were "therapeutically oriented." He was expelled from one school for excessive drinking, and had dropped out of public school. He had had several insulin comas due to drinking alcohol and neglect of medication and diet. He was seeking companions who were quite delinquent.

On admission he was hostile, critical, sarcastic, and aloof. He tended to blame his problems on his father and others. He was defensive in interview. He saw nothing serious in his delinquent behavior. He complained of a subjective feeling of slight memory loss. His EEG revealed "random slowing in the frontal temporal areas suggesting subcortical dysrhythmia." He received a measured diet, 60 units of U80 Lente insulin, Dilantin, Mysoline, and Phenobarbital. He was given Mellaril 50 mg. q.i.d. and showed considerable improvement in attitude on a controlled regimen. He was allowed to go to summer school where he did well for several weeks and then began to argue with teachers, return late from school, and show evidence of dietary indiscretions in Clinitest examination. He became more hostile and aloof and in November 1967, he eloped and was returned by ambulance five days later after having a series of seizures, at the home of a friend where he had been hiding.

Electroconvulsive therapy was recommended and he received 40 treatments between January 30, 1968 and August 20, 1968. He also received Mellaril 100 mg. q.i.d., Dilantin, Mysoline, Phenobarbital, Lente insulin, and Antabuse.

He showed a marked improvement, became accessible, friendly, and cooperative. His negativism and defiance were no longer in evidence. His diabetes was under good control, he had no spontaneous seizures and in July 1968 was discharged.

He has now completed two years of college with some minor academic difficulties admittedly due to poor study habits. He received Antabuse on a supervised basis during this time. One week in the summer of 1969 he missed taking Antabuse, drank beer, and apparently had a seizure and fell, sustaining a laceration of the scalp. He was readmitted, his medications stabilized and he was discharged after two weeks to return to college. He is presently employed in a summer job and is cooperative, reasonable, and dutiful about his medications.

Case 4. Bill is the 18-year-old son of an Air Force Colonel, who was brought to the Emory John Brady Hospital on May 16, 1969 from the El Paso County Jail where he had been held for four months pending charges of selling narcotics and dangerous drugs. He was on bond for similar charges in San Francisco. He had been seen by the local Mental Health Center two years previously and they diagnosed "passive-dependent personality." He had dropped out of school at age 16. He was reportedly making $500 to $1,000.00 per week bringing drugs into Colorado Springs from California and selling them to the local young people. He had excessively and repeatedly used hallucinogens, heroin, barbiturates and amphetamines. He was a tall, pale, hulking boy with hostile appearing brown eyes. He was superficially passive and non-committal. He was evasive, furtive, and conspiratorial on the ward, associating almost exclusively with a 19-year-old boy who had been convicted of a drug felony charge. He did not read or engage in projects and was either apart from the group with his friend or was lying in bed "sleeping." He often refused to get up in the morning and if he did, he went back to bed for the rest of the morning. He was given Mellaril 100 mg. q.i.d. and gained from 154 to 209 pounds in a 10 month period. His color had improved but he continued to be sloven and negative, dull in affect, and "sneaky" in behavior. He complained of "boredom." On several occasions he became very pale and rather frightened appearing, stating he was having "flashbacks." He intermittently complained of feeling "paranoid."

On March 5, 1970 he was started on a course of electro-convulsive therapy and received 31 treatments, which were discontinued on June 11, 1970. On July 17, 1970 he started mechanics training at the local Junior College, is maintaining a "B" average and is pleasant, prompt, spontaneous, cooperative, and sociable with a wide range of peers and adults. He continues to receive Mellaril 50 mg. q.i.d.

I have now treated a number of these adolescents whose symptoms had been categorized elsewhere on a spectrum from "Adjustment reaction of adolescence," through "Anti-social personality" to Schizophrenia, paranoid type. They had symptoms of anxiety, ill-defined depression expressed as "boredom" and paranoid trends manifested mainly as a distrust of authority. All responded more or less well physiologically to Mellaril but usually not well to tricyclic antidepressants. Improvement representing real behavioral change was not brought about until electro-convulsive therapy was used in courses or from eight to over 100 treatments. In some, improvement was definite but not lasting. In several, later periods of four to 10 treatments brought lasting improvement. The majority showed lasting benefit similar to the cases cited.

In some of these cases various types of individual and group psychotherapies had been used without success. In others no significant psychotherapeutic effort had been made. For personal reference, I classify these patients as having a "paranoid depression of adolescence," which may result in suicide attempts, school dropout, truancy, run-away, excessive drug use, threatening and occasionally assaultive behavior especially toward parents and surrogates, petty theft, sexual promiscuity, delinquent identification, with complaints of "boredom," being "hassled," "nervousness" and sometimes sleep and appetite disturbances. They are often rather pale, with a hostile and rather furtive appearance. They may have hyperhidrosis of palms and soles and bitten finger nails and tobacco stained fingers. They are conspiratorily companionable with young people with similar disorders and thus give the appearance of being sociable.

This paranoid-depressed type of tense, alienated adolescent is a grave treatment challenge, because if the condition remains unaltered a lasting misdirection and loss of opportunity and maturation occurs. Because of the resistance of the syndrome to social or psychotherapeutic approaches, the number of these youngsters in the large adolescent population warrants alternative effective approaches. Medication is sometimes helpful but these patients usually neglect or resist taking it.

That the effectiveness of electro-convulsive therapy has been overlooked in these problems is reflected in the statistics of some of our Colorado hospitals who treat large numbers of adolescent patients. The Colorado State Hospital gave 253 electro-convulsive treatments to 19 patients in the 20 months ending July 1, 1970. Approximately one-third of these treatments were given for depression, the other two-thirds for schizophrenias. One patient with schizophrenia received 65 treatments during the period. While figures are not available, they experienced a number of inpatient suicides during this period according to newspaper reports. The Colorado Psychiatric Hospital reports only four people

treated with electro-convulsive therapy, and only for "severe depression" in the past two years. Incidentally, they have had two inpatient suicides during this period.

The Fort Logan staff gave 228 treatments to 51 patients from March through December of 1969. This year a change in treatment policy is shown by the fact that 537 treatments have been given to 142 patients in the first six months of this year but exclusively in the adult and geriatric group and primarily for depression. Two prominent Denver psychiatrists who use EST "liberally" report they each treat two or three patients each week, but only for resistant depressions in the older adult age group and seldom use a course of more than 10 treatments. They report several suicides in EST treated patients in twenty years' experience. One psychiatrist who uses EST frequently but seldom gives more than four or five treatments to each patient has had many suicides in these patients as well as in his untreated group.

The rather exotic and complicated procedures for electro-convulsive therapy found in most textbooks are unnecessary. For the 150 pound male of average musculature, Atropine gr. 1/50 is given by mouth one-half hour before treatment. No food or liquid is given after midnight. Approximately 5 or 6 cc. of 2.5 per cent solution of Sodium Pentothal is mixed with 1.4 cc. of 20 mg./ml. Succinylcholine chloride and is given rapidly in a single intravenous injection. No restraint of any kind is used. The patient is asleep in a few seconds and oxygen is administered with a resuscitator-inhalator mask through a rubber breather which is placed between the teeth. Electrode cream is applied to the temples which have been washed with detergent. The oxygen is stopped and a brief current from a Reiter machine is applied through "horseshoe" held soda soaked pads, as soon as fasciculations in the interossei dorsalis cease. After the convulsion starts a mild stimulating current is given for one minute. Occasionally O_2 is given after the convulsion if the patient is not breathing well spontaneously. He is watched in his room until no longer ataxic. He is then allowed to eat breakfast and re-enters the hospital activities. The procedure lasts approximately five minutes, the recovery 10-15 minutes.

In over 15,000 treatments given over a thirteen year period in this manner, there has been no inadvertance except for one boy with a pre-treatment EEG reported as "resembling that seen in epilepsy" who had a spontaneous seizure after about 50 treatments. No patient has been denied treatment because of his physical condition. Patients have been from 10 to over 80 years old. Patient resistance has been mild except in intelligent agitated paranoid patients who occasionally show marked resistance and foment resistance in others.

Summary

Electro-convulsive therapy is simple, safe, and effective. Many of its failures have been the result of giving too little, too late, or for improper indications. In avowedly suicidal patients electro-convulsive treatments should be started promptly in conjunction with phenothiazine and/or antidepressant medications. In other less suicidal patients a short trial of medication may be warranted before shock treatments are instituted. Skilled administration of electro-convulsive therapy in many other disorders can bring about remissions unequaled by any other type of therapy. In addition, it can reduce to safe levels the dosage of psychoactive medications when needed for continued control, and restore the patient to his family and to a comfortable productive role in society. •

Choose the smooth road

to thyroid replacement therapy

The automatic

transition.

Your patients start thyroid therapy smoothly, easily. They feel better all along the way with no metabolic "bumps."

The gradual physiologic action of T_4 SYNTHROID provides virtually an "automatic" transition through the range of complete thyroid replacement therapy.[1]

Predictably responsive!

This kind of comfortable patient response has made SYNTHROID the most widely prescribed brand of thyroid drug in the United States. It's a Cadillac of thyroid medications ... with Volkswagen economy.[2]

The road to normalized thyroid status is a continuous one. You make it smooth and economical with SYNTHROID.

1. The deiodination of T_4 to T_3 at the cellular level has been discussed in the literature. Reprints on the subject are available from the Flint Laboratories Medical Department. Use of T_4 alone therefore provides your patients with a natural hormone combination of T_3—T_4.
2. Patient cost of SYNTHROID is less than a penny a day more than desiccated thyroid. SYNTHROID costs patients nearly 50% *less* than the synthetic combination products: American Druggist BLUEBOOK, March 1970-71

Synthroid®
(sodium levothyroxine)

FREE
MEDICATION DISPENSERS
TO START ALL YOUR PATIENTS ON SYNTHROID, IN THESE STRENGTHS:
0.05 mg. (white); 0.1 mg. (yellow); 0.15 mg. (violet); 0.2 mg. (pink).

seven color-coded strengths plus injectable

Indications: SYNTHROID (sodium levothyroxine) is specific replacement therapy for diminished or absent thyroid function resulting from primary or secondary atrophy of the gland, congenital defect, surgery, excessive radiation, or antithyroid drugs. Indications for SYNTHROID (sodium levothyroxine) Tablets include myxedema, hypothyroidism without myxedema, hypothyroidism in pregnancy, pediatric and geriatric hypothyroidism, hypopituitary hypothyroidism, simple (nontoxic) goiter, and reproductive disorders associated with hypothyroidism. SYNTHROID (sodium levothyroxine) Injection is indicated in myxedematous coma and other thyroid dysfunctions where rapid replacement of the hormone is required. When a patient does not respond to oral therapy, SYNTHROID (sodium levothyroxine) injection may be administered intravenously to avoid any question of poor absorption by either the oral or the intramuscular route.
Precautions: As with other thyroid preparations, an overdosage may cause diarrhea or cramps, nervousness, tremors, tachycardia, vomiting and continued weight loss. These effects may begin after four or five days or may not become apparent for one to three weeks. Patients receiving the drug should be observed closely for signs of thyrotoxicosis. If indications of overdosage appear, discontinue medication for 2-6 days, then resume at a lower dosage level. In patients with diabetes mellitus, careful observations should be made for changes in insulin or other antidiabetic drug dosage requirements. If hypothyroidism is accompanied by adrenal insufficiency, as Addison's Disease (chronic subcortical insufficiency), Simmond's Disease (panhypopituitarism) or Cushing's syndrome (hyperadrenalism), these dysfunctions must be corrected prior to and during SYNTHROID (sodium levothyroxine) administration. The drug should be administered with caution to patients with cardiovascular disease; development of chest pains or other aggravations of cardiovascular disease requires a reduction in dosage.
Contraindications: Thyrotoxicosis, acute myocardial infarction.
Side effects: The effects of SYNTHROID (sodium levothyroxine) therapy are slow in being manifested. Side effects, when they do occur, are secondary to increased rates of body metabolism; sweating, heart palpitations with or without pain, leg cramps, and weight loss. Diarrhea, vomiting, and nervousness have also been observed. Myxedematous patients with heart disease have died from abrupt increases in dosage of thyroid drugs. Careful observation of the patient during the beginning of any thyroid therapy will alert the physician to any untoward effects.

In most cases with side effects, a reduction of dosage followed by a more gradual adjustment upward will result in a more accurate indication of the patient's dosage requirements without the appearance of side effects.
Dosage and Administration: The activity of a 0.1 mg. SYNTHROID (sodium levothyroxine) TABLET is equivalent to approximately one grain thyroid, U.S.P. Administer SYNTHROID tablets as a single daily dose, preferably after breakfast. In hypothyroidism without myxedema, the usual initial adult dose is 0.1 mg. daily, and may be increased by 0.1 mg. every 30 days until proper metabolic balance is attained. Clinical evaluation should be made monthly and PBI measurements about every 90 days. Final maintenance dosage will usually range from 0.2-0.4 mg. daily. In adult myxedema, starting dose should be 0.025 mg. daily. The dose may be increased to 0.05 mg. after two weeks and to 0.1 mg. at the end of a second two weeks. The daily dose may be further increased at two-month intervals by 0.1 mg. until the optimum maintenance dose is reached (0.1-1.0 mg. daily).
Supplied: Tablets: 0.025 mg., 0.05 mg., 0.1 mg., 0.15 mg., 0.2 mg., 0.3 mg., 0.5 mg., scored and color-coded, in bottles of 100 and 500. Injection: 500 mcg. lyophilized active ingredient and 10 mg. of Mannitol, N.F., in 10 ml. single-dose vial, with 5 ml. vial of Sodium Chloride Injection, U.S.P., as a diluent. SYNTHROID (sodium levothyroxine) INJECTION may be administered intravenously utilizing 200-400 mcg. of a solution containing 100 mcg. per ml. If significant improvement is not shown the following day, a repeat injection of 100-200 mcg. may be given.

FLINT LABORATORIES
DIVISION OF TRAVENOL LABORATORIES INC
Morton Grove, Illinois 60053

As your hypothyroid patients travel along the smooth road, let us be of service in these 4 specific ways:

1 FREE FILM AND BOOK ON HYPOTHYROIDISM: In a 30-minute, 16-mm. sound/color film, 5 prominent endocrinologists discuss "Thyroid Deficiency—Current Concepts of Diagnosis and Treatment". Film available on FREE loan to physician groups or hospitals.

A new book, soon to be published, is devoted to the clinical aspects of hypothyroidism. The author, a leading endocrinologist, describes the many faces of the condition and emphasizes the importance of clinical assessment of the patient. Write, or ask your Flint man, to be placed on our list to receive a free copy.

2 NEW THYROID FUNCTION TEST BOOK: Newly published *Guideposts to Thyroid Therapy* discusses the tests most appropriate for use with each type of thyroid medication. Fully describes thyroid function tests and places their relative values in perspective for physicians. It will give you valuable new insights into the role of these tests in diagnosis and treatment. FREE—ask your Flint man.

3 TO START THERAPY, FREE TAB-MINDER dispensing units, color-coded to match colors of SYNTHROID tablets in starting dosage strengths. TAB-MINDER helps patients to regularly take the thyroid dosage you prescribe, avoid medication errors. Ask your Flint man.

FREE
MEDICATION DISPENSERS
TO START ALL YOUR PATIENTS ON SYNTHROID, IN THESE STRENGTHS:
0.05 mg. (white); 0.1 mg. (yellow); 0.15 mg. (violet); 0.2 mg. (pink).

4 SYNTHROID® INJECTION FOR THYROID EMERGENCIES: Whenever (as in myxedema coma) rapid replacement of thyroid hormone is needed to sustain life, prompt clinical response is essential. SYNTHROID INJECTION makes this therapy instantly available. Useful also in postoperative thyroid medication situations until oral therapy can be reinstated. Ask your Flint man for further information.

FLINT LABORATORIES
DIVISION OF TRAVENOL LABORATORIES, INC.
Morton Grove, Illinois 60053

Excision of spinal cord arteriovenous malformation

O. Howard Reichman, MD and Bruce F. Sorensen, MD,
Salt Lake City, Utah*

A juvenile type arteriovenous malformation of the spinal cord has been successfully removed using microsurgical technic.

VASCULAR MALFORMATIONS of the spinal cord present a difficult challenge both in diagnosis and treatment. The initial symptoms are frequently vague spinal pain and radicular pain or paresthesias. The clinical course may be characterized by slowly progressive paraparesis, intermittant relapse and remission of paraparesis, or acute paraplegia. Associated subarachnoid hemorrhage is not uncommon and may be the only presenting feature.

The myelographic appearance of a spinal cord vascular malformation was described in 1925 by Guillain and Alajouanine.[7] Henson and Croft[8] demonstrated a vascular malformation of the cervical spinal cord during vertebral angiography in 1953. Opacification of a vascular malformation involving the dorsolumbar region was accomplished during aortography by Rand and Rand[13] in 1954. Systematic study using aortography and selective arteriography has been reported by Djindjian *et al.*,[4] Baker *et al.*,[1] and Di Chiro *et al.*[3,6] Selective arteriography has been helpful to determine precisely the number and location of feeding vessels. By this technic some lesions have been visualized which were not apparent with other diagnostic studies.

Treatment has been attempted by decompressive laminectomy, ligation of feeding arteries,[9,12] nonsurgical embolization of feeding arteries,[5,11] ligation of draining veins,[2] and surgical excision.[14,15] Shephard[15] recognized a distinction between the circulation to the cord and to the arteriovenous malformation. He also emphasized its composition of only a few tortuous vessels on the posterior aspect of the cord, the rarity of an intramedullary component, and compression of the cord as a significant factor in causing symptoms. These concepts have led to a logical basis for treatment by total excision, resulting in greater relief of neurologic impairment with reduced risk of spinal cord ischemia. Yasargil[10,16,17] has been particularly successful with surgical excision utilizing the operating microscope, special micro-instruments, and bipolar coagulation.

The present case is of particular interest because of the patient's age, the complex lesion with multiple feeding vessels (the major one passing anterior to the cord) filling a large thin-walled sac, the necessity of persisting in an effort to occlude all feeders prior to a direct attack on the large sac, and the gratifying result obtained after total removal.

CASE REPORT

A 7-year-old female was admitted July 8, 1970, with a 3-week history of limping on her left leg and increasing weakness of her left foot, which had progressed to complete foot-drop and inversion deformity. Three years ago she had developed pain in her low back. Four years ago she became unconscious for a week, with nuchal rigidity, following a mild head injury. Lumbar punctures at that time were reported as very bloody.

Examination: The significant neurologic findings were slight weakness of right hip flexion, moderate weakness of left hip flexion and extension, and paralysis of dorsiflexion and eversion of the left foot. She walked with a steppage gait. The right knee-jerk and left ankle-jerk were absent. The left knee-jerk was very brisk. The anal sphincter had diminished tone and diminished voluntary contraction. Sensory examination was intact. Lumbar puncture revealed no cells and a protein of 75 mg%. A myelogram showed serpiginous filling defects extending upward from L-4

*From the Division of Neurological Surgery, Latter-day Saints Hospital, Salt Lake City, Utah.

with a large globular filling defect at L-1 and almost complete obstruction at T-12.

First aortogram: Fig. 1. A large feeding artery arose at T-11 on the left side and extended upward to T-9, where it turned caudally to begin filling a large tortuous arteriovenous malformation. A large dumbell-shaped aneurysm, measuring 1.5 x 3 cm., filled at L-1. Caudally there were several large draining veins.

First operation: July 20, 1970. A total laminectomy was performed between T-9 and L-3. After opening the dura, a large complex arteriovenous malformation was exposed (Fig. 2A). The Zeiss operating microscope and Malis bipolar coagulator were used throughout the procedure. Multiple feeding vessels (including one which arose at T-11 and extended upward and dorsally to T-9) were ligated, divided, and freed to the malformation. The malformation was then dissected from the surface of the cord caudally to the large aneurysm. The aneurysm remained tense in spite of removing all visible feeders. The procedure was terminated and repeat aortography scheduled.

Second aortogram: July 21, 1970. Fig. 3. The major feeding vessel was still open. There were few other vessels and flow through the malformation appeared slower and greatly reduced.

Second operation: July 22, 1970. The operative incision was reopened (Fig. 2B). A second feeding vessel at T-11 was found passing sharply in the ventral direction. This was ligated and divided. The aneurysm remained tense. The same major vessel was then identified, ligated, and divided at two separate sites more distally. The aneurysm then became less tense and yielded to some manipulation. Three additional feeding vessels were identified and ligated. It was then possible to remove the aneurysm with several draining veins and totally excise the arteriovenous malformation (Fig. 2C).

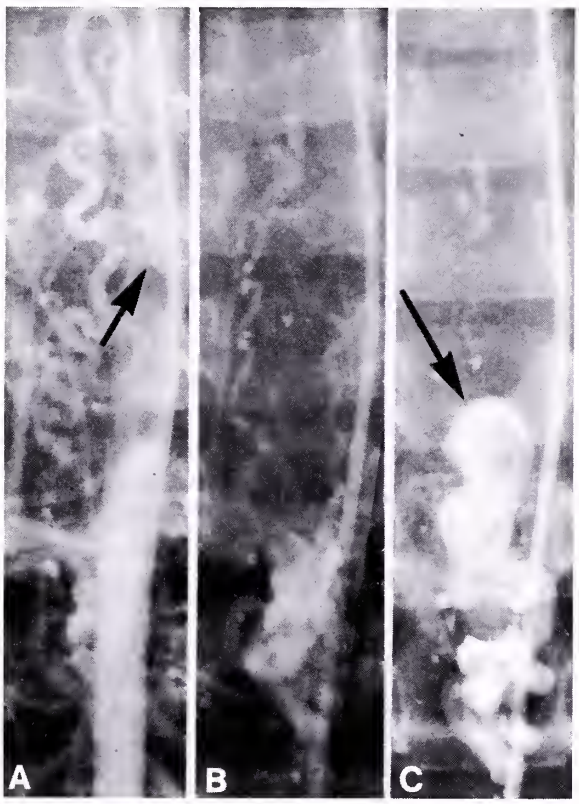


Fig. 1. Serial photographs of aortogram with catheter in mid-dorsal aorta. A. Origin of feeding artery on the left at T-11 (arrow). B. Complex tangle of arteries. C. Aneurysm (arrow) and draining veins.

Fig. 2. A. Initial operative exposure. B. Second operative exposure. Upper portion of malformation has been removed. Aneurysm (arrow) remains tense. C. Total removal accomplished.

Fig. 3. Second aortogram. Major feeding vessel remains open (arrow). Flow is slow and filling is less complete.

Fig. 4. The patient twelve days after removal of malformation.

Tax-free Cash!

Here's great news about a Disability Income Plan that can pay you up to $1,000.00 a month in TAX-FREE CASH when you're sick or hurt and can't work.

This remarkable plan is offered to you at a special savings as a member of the Colorado Medical Society. It is underwritten by Mutual of Omaha, the leader in its field.

You choose the coverage best suited to your requirements from among 34 different plans—each one tailored to meet a special need.

This is the kind of protection every doctor should have. So send today for full details. Complete and mail the coupon below today.

Mutual of Omaha®
The Company that pays
Life Insurance Affiliate: United of Omaha
Mutual of Omaha Insurance Company
Home office: Omaha, Nebraska

Colorado Division Office
2nd Floor, Railway Exchange Bldg.
Denver, Colorado 80202

Please rush me full details on the Colorado Medical Society's Disability Income Protection Plan.

Name.....

Address.....

City.....State.....Zip.....

3-6-9-12-71

Postoperative course: The neurologic findings were unchanged after the first operation. For a few days after the second operation, the patient experienced increased weakness in the left leg and some tendency for urinary retention. Twelve days after the second operation she was walking well, had adequate bowel and bladder function, and was considered ready for discharge (Fig. 4). Four months after surgery she walks and runs normally. Motor examination is normal and there is no residual urine. She does have minimal hypalgesia on the soles of both feet, posteriorly on the left thigh, and over the left perianal region. Anal sphincter tone is normal and the anal reflex is normal bilaterally.

Comment

The juvenile type of arteriovenous malformation, as illustrated by this case, is considerably more complex than the coiled single-vessel type presented more frequently in adults. Total excision of this complex type is also possible by systematic and diligent search for all feeding vessels. The excellent result in this patient substantiates the concept that circulation to the lesion is separable from circulation to the spinal cord. •

REFERENCES

[1] Baker, H. L., Love, J. G., Layton, D. D.: Angiographic and surgical aspects of spinal cord vascular anomalies. Radiology, 88:1078-1085, 1967.
[2] Chatterjee, R. N.: Spinal vascular malformations: Their classification, pathogenesis, and the rationale of treatment by excision of the draining veins. Excerpta Medica International Congress Series, No. 193, Sept. 20-27, 1969, p. 46.
[3] Di Chiro, G., Doppman, J. L., Ommaya, A. K.: Selective arteriography of arteriovenous aneurysms of spinal cord. Radiology, 88:1065-1077, 1967.
[4] Djindjian, R., Dumesnil, M., Fauré, C., Lefébvre, J., Levéque, B.: Étude angiographique d'un angiome intrarachidien. Rev. Neurol. (Paris), 106:278-285, 1962.
[5] Doppman, J. L., Di Chiro, G., Ommaya, A. K.: Obliteration of spinal cord arteriovenous malformation by percutaneous embolization. Lancet, 1:477-478, 1968.
[6] Doppman, J. L., Di Chiro, G., Ommaya, A. K.: Selective Arteriography of the Spinal Cord. St. Louis: Warren H. Green, 1969, 157 pp.
[7] Guillain, G., Alajouanine, T.: Paraplégie par compression due à un volumineux angiocèle de la pie-mère spinale. Contribution à l'étude des compressions médullaires dues à des formations vasculaires pathologiques. J. Neurol. Psychiatr. (Brux), 25:689-698, 1925.
[8] Henson, R. A., Croft, P. B.: Spontaneous spinal subarachnoid hemorrhage. Quart. J. Med., 25:53-66, 1956.
[9] Houdart, R., Djindjian, R., Hurth, M.: Vascular malformations of the spinal cord. The anatomic and therapeutic significance of arteriography. J. Neurosurg., 24:583-594, 1966.
[10] Krayenbuhl, H., Yasargil, M. G., McClintock, H. G.: Treatment of spinal cord vascular malformations by surgical excision. J. Neurosurg., 30:427-435, 1969.
[11] Newton, T. H., Adams, J. E.: Angiographic demonstration and nonsurgical embolization of spinal cord angioma. Radiology, 91:873-876, 1968.
[12] Ommaya, A. K., Di Chiro, G., Doppman, J. L.: Ligation of arterial supply in the treatment of spinal cord arteriovenous malformations. J. Neurosurg., 30:679-692, 1969.
[13] Rand, R. W., Rand, C. W.: Intraspinal Tumors of Childhood. Springfield, Ill., Charles C. Thomas, 1960, p 281.
[14] Scoville, W. B.: Intramedullary arteriovenous aneurysm of the spinal cord. Case report with operative removal from the conus medullaris. J. Neurosurg., 5:307-312, 1948.
[15] Shephard, R. H.: Some new concepts in intradural spinal angioma. Riv. Pat. Nerv. Ment., 86:276-283, 1965.
[16] Yasargil, M. G.: Microsurgery Applied to Neurosurgery. Stuttgart. Georg Thieme Verlag, 1969, 230 pp.
[17] Yasargil, M. G.: Surgery of Vascular Lesions of the spinal cord with the microsurgical technique. Clin. Neurosurg., 17:257-265, 1970.

The addicted physician

—*A ray of hope*

Franklin G. Osberg, MD, Pueblo, Colorado*

IT IS A FRIGHTENING paradox that the physician, who is or should be more knowledgeable about addicting drugs than any other person in our society, outnumbers any other class of people by 30 to 1 to 100 to 1 in his chance of becoming addicted to drugs.[1,2] Statistics vary, but if we accept an addiction rate of 1:10,000 among the general population as somewhat accurate, then the rate among physicians lies between 1:100 to 1:300. Stating the problem another way, it is estimated[3] that at least 300 physicians become addicted each year to meperidine alone (the physician-addict's choice). This is equivalent to the number graduating annually from three medical schools.

*Dr. Franklin G. Osberg is the Director of Admissions, Colorado State Hospital, Pueblo.

There is another interesting, though not surprising, paradox in medicine. Physicians, who are dedicated to the preservation of life, kill themselves at a rate from four to six times that of the general population. The loss of physicians by suicide each year (at a mean age of 49) is equivalent to the graduating class of still another good-sized medical school. That there is a high relationship between drug abuse and physician suicide is well established. One study[4] showed that in only 33 per cent of physician suicides there was no history of drug involvement, and in 19 per cent a history of severe drug dependence or abuse was found.

There are significant qualitative, as well as quantitative, differences between the physician and non-physician addict population. These differences are of great importance when treatment programs for physician addicts are considered.

The addicted physician began using drugs at a later age than did the non-physician (39 as compared to 21). Where the ordinary addict began using drugs out of simple curiosity, for kicks, or because of peer group pressure, the physician began because of overwork, chronic fatigue, or physical disease. In one study,[5] it was found that most physician addicts were persons of average potential with high and unrealistic aspirations. It has not been my experience that addicted physicians are average. In fact, of the twelve with whom I have been in close contact, only two could be considered average. The rest were much better than average in the eyes of their colleagues. One was a very successful otolaryngologist, one a very respected obstetrician, another an extremely competent internist, two were successful surgeons (one internationally recognized for some of his procedures), and still another a psychiatrist, undoubtedly knowledgeable about drugs. All but one of these is now dead, four definitely by suicide. All had been "treated," and all died out of treatment.

The typical physician addict has had three voluntary attempts at cure, while the ordinary addict has had no voluntary attempts but has a much greater arrest rate because of drug involvement and at an earlier age than the physician. The physician relapses for medical reasons or because of alcohol, whereas the non-physician does so through association with other addicts.

The physician obviously has a college education and usually comes from an above average socio-economic family, in contrast to the ordinary addict who has a high school education and comes from a marginal family socio-economically. Whereas the non-physician is single or divorced, the physician is usually married with a family, although the marriage cannot be described as a happy one. The physician addict usually comes from a small town (where the pressures are greater?) in contrast to the average addict who originally comes from a large metropolitan area. An important difference, when thinking of therapeutic approaches, is that the professional usually has some type of practice to look forward to, while the ordinary addict has little hope of employment.

On the basis of the above comparisons, it would seem that the prognosis in treatment of the physician addict should be considerably better than that of the non-physician. His resources, both inherent and acquired, are infinitely greater. His intelligence, education, profession, stable marriage, and future potential are all greater and more promising that those of the non-physician. Yet, the physician's chance for recovery through any present treatment approach, is little if any, better than it is for the non-professional addict.[6]

Treatment personnel have ruminated for years on the reasons for the poor prognosis in the treatment of addicted physicians. A number of factors are involved. It is recognized that very few physicians will, or are able to break away from their addictions without help. Their ability to rationalize, vacillate, prevaricate, and carry on subterfuge differs to no degree from their lay counterpart. As a patient, the physician addict is apt to be regarded by his peers as a nest-fouling bird and is apt to be met with hostility, scorn, and rejection.[7] The ever-present availability of drugs and the ease with which he can "write them off," or account for drugs by claiming to have dispensed them to patients, makes their presence a constant hazard to the overworked,

fatigued physician. Because of social mores, the physician cannot afford to depend on alcohol for its relaxing properties due to the possibility of having to make a professional call after drinking. The tendency to self-treat among physicians often leads to drug abuse.

Meperidine seems to be the drug of choice among physician addicts as contrasted with opiates for the non-physician. The ability of meperidine to produce elation may be an important factor in this choice, since it is quite effective in elevating the mood of a tired, depressed physician who has slowly come to feel somewhat inadequate. Addiction danger is greater in drugs that produce elation, however, and meperidine is probably more addicting and hazardous than morphine. Addiction to it (meperidine) is probably more difficult to treat. Although this is generally recognized, there seems to be a very unrealistic belief among some physicians that Demerol is, if not non-addicting, only mildly so, and can surely be controlled. In addition, these physicians seem to rationalize that since they are so knowledgeable about drugs, surely they can regulate their own use of them to their benefit, and not fall into the trap of addiction so easy to do for the uninformed. Only far too late do they realize that in this respect at least, they are only human and no different from anyone else.

Some of the strengths and resources mentioned earlier (intelligence, knowledge, socio-economic status, etc.) are two-edged swords and become handicaps, in a sense, when treatment is attempted. In any treatment modality of which I am familiar, the physician addict has two unique strikes against him before he even begins treatment. One is the attitude exhibited by non-addicted therapists or other lay addicts in therapy which may be summed up in the statement, "How can you, a physician, with all your knowledge, social and professional position in the community, and your specific knowledge about drugs, get caught in the disgraceful trap of drug addiction?" The second strike against him is his feeling of unique guilt at finding himself in this position. With these factors against him, which he must overcome before treatment can become effective, it is obvious, I believe, why therapeutic attempts are so often doomed to failure.

The few successful (to any significant degree) treatment programs for drug addiction seem to rely heavily on certain types of group therapy: role-playing, confrontation therapy, sensitivity training, etc.[8,9,10] It would also seem unrealistic to expect a physician, with the strikes against him already mentioned, to comfortably fit into such groups. His greatest chance for success would probably lie in being treated in a one-to-one situation with a private therapist, usually a non-addicted psychiatrist. Even here, the same negative forces would undoubtedly be at work.

There may be a ray of hope, however. If enough influential and altruistic physicians can be made to recognize the devastating toll taken from their own ranks each year by drug addiction, with its concomitant economic loss of millions of dollars annually, they may be induced to divert some of the money spent by medical societies and associations in producing *new* physicians, to the equally important task of saving for profitable use more of those physicians already well trained, probably "better than average" doctors, who have many potential years of useful service left to them if they can be rescued.

In 1956 a treatment facility for alcoholic priests was established at Lake Orion, Michigan. Since then another, an extension of the first, was opened at Rochester, Minnesota, and several more are contemplated. In the 13 years since Guest House was opened, over 500 priests have been treated for alcoholism with an unprecedented, certified recovery rate of 72 per cent as compared to 7-15 per cent generally claimed by alcoholism programs. One of the important factors contributing to the unusual success of this group is their peer setting. According to Arthur J. Baker, Executive Director of Guest House, "Professional persons seem to respond to therapeutic intervention more readily in an appropriate setting among their own peers. The positive power of example from a peer group is enormous. Perhaps the biggest factor involved is the rapid crumbling of the denial system under the impact of such a milieu." This is a long term (4-18 month) treatment program, voluntary as well as non-voluntary,

involving any and all modern treatment approaches to alcoholism. In this peer setting, however, here is no need for the moral issue to be brought up, because all are in "the same boat." No one is "better" than any other, and guilt feelings are minimized. Rather, all have a common bond—that of being alcoholic priests; and all can more comfortably join in the more meaningful task of recovery.

I am, therefore, suggesting the feasibility and desirability of establishing a facility for the treatment of addicted physicians patterned after Guest House for alcoholic priests. I envision a dignified setting, perhaps in a semi-isolated locality, wooded, near a lake or mountain stream, quiet, staffed by extremely competent therapists thoroughly knowledgeable in the various treatment approaches to addiction, and some who preferrably would be recovered addicts, themselves, to fill some of the therapy roles. Only drug-addicted physicians would be treated here so that the resentments and guilt feeling would be kept at a minimum. In such a setting, and among his peers in every sense of the word, unhurried and over a long period of time, it seems to me would lie the best chance for recovery of this most miserable and lonely of humans.

Summary

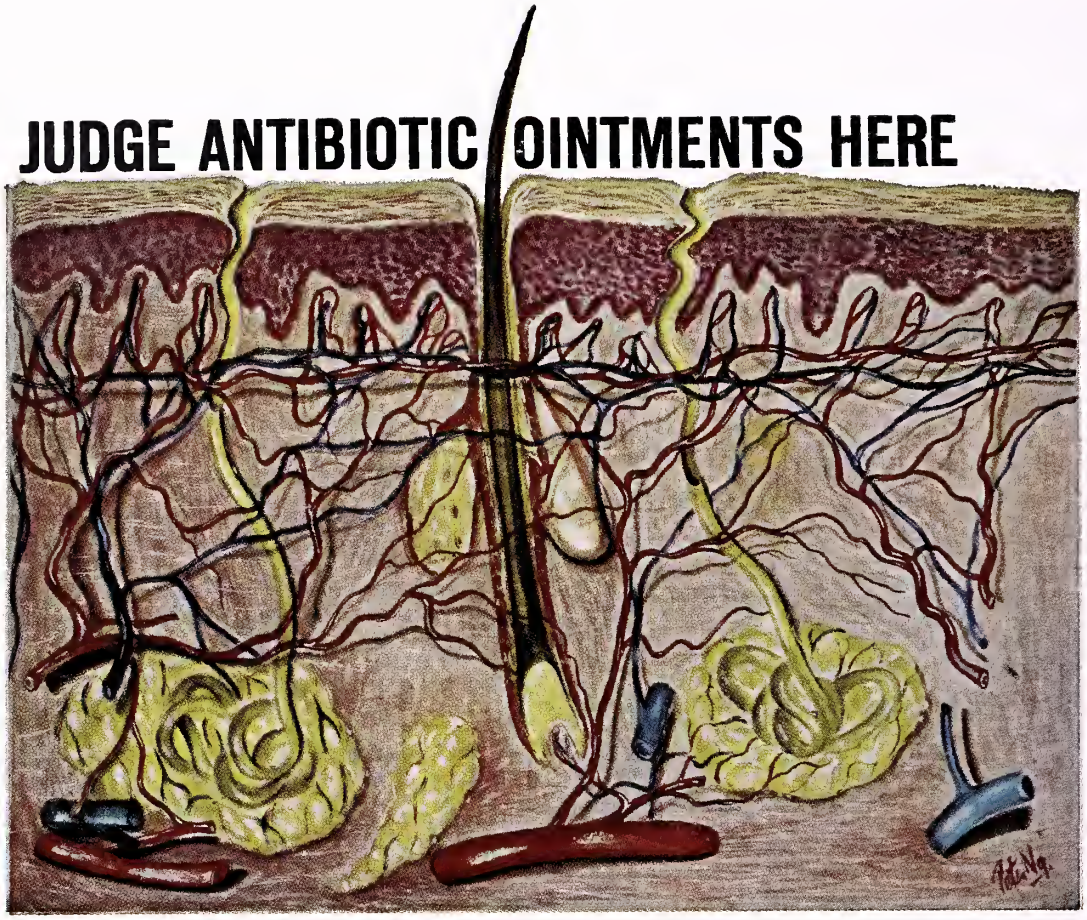
Physicians, comparable in number to the entire graduating classes of three medical schools annually, become addicted to narcotics. A number, equal in size to the graduating class of still a fourth school, die by suicide each year. In only a third of the latter group is there no history of misuse of drugs. Addicted physicians differ in many respects from non-physicians. In fact, their only common denominator seems to be the abuse of drugs. These differences probably help account for the disappointing results obtained in conventional treatment approaches, particularly those in which both physician and non-physician addicts are involved in the same group processes.

A new treatment approach is suggested, based on the experiences of Guest House, a treatment facility for alcoholic priests. This facility would be for addicted physicians only, and would utilize the modern group therapy technics. Here the two strikes against physicians in most current programs would not apply—the reactions of lay addicts to the professional who should "know better," and the professional's guilt at being caught in this trap. •

REFERENCES

[1] Fox, J. D.: Narcotic Addiction Among Physicians, Journal of The Michigan State Medical Society, 56:214-217, 226, February 1957.
[2] Winick, C.: Physician Drug Addicts, Social Problems, 9:174-186, Fall 1961.
[3] Garb, S.: Drug Addiction in Physicians, Anesthesia and Analgesia; Current Researches, 48:129-133, January-February 1969.
[4] Blachly, P. H., Disher, W., and Roduner, G.: Suicide by Physicians, Bulletin of Suicidology, pp. 8-18, December 1968.
[5] Modlin, H. C., and Montes, A.: Narcotics Addiction in Physicians, American Journal of Psychiatry, 121:358-365, October 1964.
[6] Pescor, M. J.: Physician Drug Addicts, Diseases of The Nervous System, 3:173-174, June 1942.
[7] Jones, C. H.: Narcotic Addiction of Physicians, Journal of The Medical Association of The State of Alabama, 37:816-827, 1968.
[8] Mendocino State Program for Drug Addicts Develops Responsibility, American Hospital Professional, pp. 8-9, January 1969.
[9] Wood, R. W.: California Rehabilitation Center, in Rehabilitating the Narcotic Addict: Report of Institute on New Developments in the Rehabilitation of the Narcotic Addict, Fort Worth, Texas, U.S. Government Printing Office, pp. 149-161, February 16-18, 1966.
[10] Ramirez, E.: The Mental Health Program of the Commonwealth of Puerto Rico, in Rehabilitating the Narcotic Addict: Report of Institute on New Developments in the Rehabilitation of the Narcotic Addict, Fort Worth, Texas, U.S. Government Printing Office, pp. 171-181, February 16-18, 1966.

JUDGE ANTIBIOTIC OINTMENTS HERE



Results on skin are final proof of any topical antibiotic's effectiveness

No in vitro test can duplicate a clinical situation on living skin. 'Neosporin' (polymyxin B—bacitracin—neomycin) Ointment has consistently proven its effectiveness in thousands of cases of bacterial skin infection. The spectra of the three antibiotics overlap in such a way as to provide bactericidal action against most pathogenic bacteria likely to be found topically. Diffusion of the antibiotics from the special petrolatum base is rapid since they are insoluble in the petrolatum, but readily soluble in tissue fluids. The Ointment is bland and nonirritating.

Caution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

Supplied: Tubes of 1 oz., ½ oz. with applicator tip, and ⅛ oz. with ophthalmic tip.

Complete literature available on request from Professional Services Dept. PML.

'NEOSPORIN'®

brand

POLYMYXIN B-BACITRACIN-NEOMYCIN OINTMENT

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.

Carcinoma of the cecum*

A review of 40 cases

Robert M. Cardelli, MD, Colorado Springs, Colorado

THE PURPOSE OF THIS study is to review our cases of carcinoma of the cecum which were detected during a five-year period from 1964 to 1969. Attention will be primarily focused on the presenting complaints and laboratory evaluation. Because of an experience with an illustrative case to be presented, attention will be given to the possible importance of iron deficiency anemia as a presenting complaint of patients with this disease, as well as the usefulness of the stool guaiac examination in the diagnosis of such patients. Also considered will be the barium enema studies and extent of the lesion at the time of surgery.

CASE REPORT

A 41-year-old woman had had severe weakness, dyspnea and epigastric pain for four months. Physical examination was unremarkable except for mild abdominal tenderness and a suspicious area in the right lower quadrant which was thought to represent a small mass. Her hemoglobin was 7.5 gm. with a hematocrit of 29 per cent, for a mean corpuscular hemoglobin concentration of 25.8 per cent (Normal: 32-36 per cent). Microcytes were noted. Three separate stool examinations showed a strongly positive test for occult blood. Sigmoidoscopy and two barium enemas were negative. A bone marrow showed a normal M:E ratio but no stainable iron and was thought to be consistent with an iron deficiency anemia. In view of the physical findings, anemia, bone marrow study, repeated positive stool guaiac tests and in spite of two separate negative barium enemas, surgical exploration was undertaken. A fungating mass 4 cm. in diameter was found in the cecum. It had completely penetrated the bowel wall. Microscopically, it was a poorly differentiated adenocarcinoma. Metastatic tumor was found in 5 of 28 lymph nodes. Within one year, she had developed liver metastases and died of disseminated adenocarcinoma one and a half years from the time of initial diagnosis.

*From the Pathology Department, Penrose Hospital, Colorado Springs, Colorado.

Method

A total of 40 patients with primary carcinoma of the cecum with operation, at Penrose Hospital, were reviewed. These were treated from 1964 to 1969, during which period 29,729 surgical specimens were processed. The clinical history, physical findings and laboratory studies were obtained from the hospital charts of all 40 patients. Particular attention was paid to the hemoglobin, hematocrit, red cell morphology and stool guaiac test. All barium enema studies were reviewed. The pathologic material was examined to determine the extent, differentiation and spread of the neoplasms. The number of positive lymph nodes and distal metastasis at the time of surgery was noted. A careful study of hospital records as well as cancer clinic records was made to determine mortality and recurrence on follow-up. Where possible, correlations were attempted between staging, differentiation and survival. The material was categorized under nine separate headings.

Results

1. Age and Sex: In our series, females were found to outnumber males by 67.5% to 32.5% (Table 1). The mean age for females was 70.8 years and for males 65.6 years. Most females were grouped in their sixties, seventies and eighties at the time of diagnosis

TABLE 1
Age and Sex Distribution

	Male	Female
40-49	2	1
50-59	4	2
60-69	1	11
70-79	3	6
80	3	7
TOTAL	13 (32.5%)	27 (67.5%)
Mean Age —	Males 65.6	range 45-83
	Females 70.8	range 48-88

while proportionately more males were in their fifties, seventies and eighties.

2. Presenting Complaint: Abdominal pain was the most common complaint, being present in 35 per cent of the cases (Table 2). This was followed by rectal bleeding (22.5%) and weakness (17.5%). A mass palpable by the patient and unexplained anemia each were found in 15 per cent of the cases. Weight loss was reported by 12.5 per cent of patients, as was diarrhea. Only five per cent complained of nausea, and one of the patients complained of constipation. The most frequent set of complaints was abdominal pain, melena or red blood in the stools and weakness. Fifteen per cent of the patients entered the hospital for an unrelated disorder and were found to be anemic; none of these had specific gastrointestinal complaints.

3. Physical Findings: A palpable abdominal mass was found in 60 per cent of patients. The mass was usually located in the right lower quadrant, but two patients were noted to have a midabdominal mass and one patient had an epigastric mass. Signs of intestinal obstruction and acute appendicitis were found in one patient. Two patients had obvious distal metastasis at the time of the initial study.

4. Anemia (Table 3): Although only 15 per cent of patients had a presenting complaint of unexplained anemia 62.5 per cent of all patients were found to be anemic on initial work-up. Twenty-two and five-tenths per cent were males and 40 per cent were females. Nine of 13 (69.2%) males were anemic. Fifteen of 27 (59.2%) females were anemic. Of all patients studied, 27.5 per cent had a microcytic, hypochromic anemia. Eight (20%) were females and three (7.5%) were male. Seven females had a hemoglobin of less than 10 gm. and all had microcytic, hypochromic morphology. Only one male had less than 10 gm. of hemoglobin and likewise had a similar morphology. The mean hemoglobin for males was 12.1 gm. and for females 11.3 gm.

5. Barium Enema: A cecal mass was suggested by barium enema in 92.5 per cent of patients. One patient had an inconclusive study and two patients did not have radiographic studies.

6. Stool Guaiac Test: 80 per cent of patients did not have a stool guaiac examination recorded on the hospital chart. Of the 20 per cent that did have a recorded guaiac, seven patients had positive results and one had a negative test. All patients with unexplained anemia had positive stool guaiac tests. Three of the patients with positive stool guaiac tests and unexplained anemia did not have a palpable abdominal mass.

7. Histologic Typing: 42.5 per cent of the neoplasms were poorly differentiated adenocarcinomas.Thirty-five per cent were moderately differentiated and 15 per cent were well differentiated adenocarcinomas. Of the above, seven neoplasmas were mucus secreting and one was papillary. Five of the six patients with differentiated adenocarcinoma had nodal metastasis at the time of surgery.

8. Extent of Lesion at Surgery: The Astler and Coller modification of Dukes' classification was used to stage the neoplasm, (Table 4). Sixty-five per cent had regional node metastasis at the time of surgery. Twenty-five per cent had no nodal involvement. Ten per cent could not be evaluated. Twenty-five per cent of patients had extra nodal metastasis at the time of surgery.

9. Survival: A five-year survival is not possible because of the time period involved. However, 47.5 per cent of patients died with a mean survival of 12.2 months. Fifteen per cent of patients died without leaving the hos-

TABLE 2
Presenting Complaint

	No. of Patients	%
Abdominal pain	14	35 %
Rectal Bleeding	9	22.5%
Weakness	7	17.5%
Unexplained anemia	6	15 %
Mass palpable by patient	6	15 %
Weight loss	5	12.5%
Diarrhea	5	12.5%
Nausea	2	5 %

TABLE 3
Anemia*

	No. of cases	%
TOTAL	25(40)	62.5%
Hypochromic microcytic	11(40)	27.5%
Male	9(13)	69.2%
Hypochromic microcytic	3(13)	23.0%
Female	15(27)	59.2%
Hypochromic microcytic	8(27)	29.6%

*Lower limit of normal hemoglobin for our Laboratory is 13.5 gm. for males and 12.6 gm. for females.

TABLE 4
Astler and Coller Modification of Dukes' Classification
Stages

			No. of Cases	%
I		(No nodes involved)		
	a	lesion confined to mucosa	0	
	b_1	Lesions extending into muscularis propria but not penetrating it	4	10%
	b_2	lesions penetrating muscularis propria	6	15%
II		(Positive nodes)		
	c_1	limited to the wall	2	5%
	c_2	through all layers	24	60%
		Not available	4	10%

pital after initial surgery. Twenty-two and five-tenths per cent of the patients are alive. One patient had a recurrence after five years. Thirty per cent of the patients are lost to follow-up. Although, no definite conclusions can be drawn because of the short follow-up period, 12.5 per cent of patients with stage I classification are alive and 10 per cent with stage II are living.

Discussion

Patterson and Deaver at Lankenau Hospital[12] reviewed 29 cases of carcinoma of the cecum covering a period from 1934 to 1948. They found abdominal pain to be among the presenting complaints in 79 per cent and melena in 29 per cent of patients. Sixty-two per cent of the patients in the series had a palpable abdominal mass on physical examination. Hopkins and Deaver[9] continued the study from 1948 to 1958 and recorded 27 additional cases. Males slightly outnumbered females and the mean age was 61 years. Eighty-nine per cent of their patients presented with abdominal pain and 85 per cent were anemic. A palpable abdominal mass was found in 89 per cent of cases and weight loss in 57 per cent. Costello, in a review of 122 cases of cecal carcinoma,[5] reported 70 per cent with abdominal pain and 83 per cent with a palpable abdominal mass on physical examination. Nine patients had a morphologically unspecified type of anemia. Males slightly outnumbered females. Brown, Colvert and Brush[2] reported a palpable abdominal mass in 76 per cent of 35 patients with carcinoma of the cecum. Seventy-nine per cent were anemic but the type of anemia was not specified. McSwain, Sadler and Main[10] reported 90 per cent of patients with abdominal pain and 33 per cent of patients with a palpable abdominal mass in 61 cases of carcinoma of the cecum. A mass palpable by the patient was listed among the presenting complaints in 3.2% to 24.4% of cases in various series. The frequency of abdominal pain whether right lower quadrant or elsewhere and a palpable abdominal mass was striking. The frequency of anemia and rectal bleeding varied but were generally lower than abdominal pain and a palpable mass.

The patient presented in the case report above was typical in that the presenting complaints were abdominal pain and weakness. Similar presenting complaints were present in most of the cases reviewed. Although barium enemas were positive in the vast majority of patients, this lady had two negative studies. She was anemic as were 62.5 per cent of the patients in this study. She had a microcytic, hypochromic anemia as did 27.5 per cent of our patients. In addition, a mass was palpable. A similar physical finding was present in 60 per cent of the study cases. Many of the cecal carcinomas in other series as well as our own (65%) had regional lymph node spread and deep penetration of the bowel wall at the time of surgery.

Carcinoma of the cecum is insidious in onset as evidenced by the fact that most patients have a palpable mass at the time of diagnosis. Since the frequency of nodal metastasis has been high at the time of surgery, increased efforts for early diagnosis are imperative in this disease. From this study and others it would seem wise to fully study the large bowel of adults with persistent abdominal pain, especially those over 40. Routine stool guaiac tests may be helpful, if interpreted carefully. Unexpected anemia must

also turn one's attention to the cecum. A relatively high percentage of patients (27.5%) had an iron deficiency type anemia and another 35 per cent had anemia that could not be qualified. Abdominal pain coupled with anemia should be an even stronger indication for large bowel study. All cases of rectal bleeding of course must be thoroughly investigated.

We are not able to draw any conclusion about prognosis based on staging as the time interval was too short for a five-year follow-up.

Summary

Forty cases of carcinoma of the cecum were reviewed. The most common presenting complaint was abdominal pain followed by rectal bleeding, weakness, anemia and a palpable abdominal mass. Females outnumbered males. Barium enema was positive in over 90 per cent of cases and 60 per cent had a palpable abdominal mass on physical examination. Staging and differentiation of the neoplasm are listed but correlation with prognosis could not be done. •

ACKNOWLEDGMENT

The author wishes to gratefully acknowledge the guidance and assistance of Dr. Morgan Berthrong in the preparation of this manuscript.

REFERENCES

1 Astler, V. B., and Coller, F. A.: The Prognostic Significance of Direct Extension of Carcinoma of the Colon and Rectum, Ann. Surg., 139:846, 1954.
2 Brown, C. H., Colvert, J. R., and Brush, B. E.: Clinical Aspects of Carcinoma of the Cecum and Ascending Colon: Report of 60 Cases Ann. Int. Med., 28:940, 1948.
3 Buser, J. W., Kirsner, J. B., and Palmer, W. L.: Carcinoma of the Large Bowel, Cancer, 3:214, 1950.
4 Cole, W. H.: Carcinoma of the Colon, Illinois Med. J., 91, 1947.
5 Costello, C.: Cancer of the Cecum, Cancer, 5:254, 1952.
6 Donald, J. W., and Donald, J. G.: Problems in Diagnosis of Carcinoma of Colon, Ann. Surg., 165:705, 1967.
7 Dukes, C. E., and Bussey, H. J.: The Spread of Rectal Cancer and its Effect on Prognosis, Brit. J. of Cancer, 3:309, 1958.
8 Ellis, H.: Carcinoma of the Cecum and Colon, Brit. Med. J., 3:37, 1963.
9 Hopkins, J. E., and Deaver, J. M.: Carcinoma of the Cecum, Am. J. Surg., 103:197, 1962.
10 McSwain, B., Sadler, R. N., and Main, F. B.: Carcinoma of the Colon, Rectum and Anus, Ann. Surg., 155:782, 1962.
11 Patterson, H. A.: The Clinical Behavior of Cancer of the Cecum, Ann. Surg., 28:348, 1962.
12 Patterson, J. F., and Deaver, J. M.: Carcinoma of the Cecum, Am. J. Surg., 131:618, 1951.
13 Spear, H. C., and Brainard, S. C.: Cancer of the Large Bowel--An Analysis of 580 Lesions, Ann. Surg. 134:934, 1951.

of the tetracycline-nystatin products

...none is lower priced

Lederle LEDERLE LABORATORIES, A Division of American Cyanamid Company, Pearl River, New York 10965

Freud in the American scene

Horace E. Campbell, MD, Denver

FREUD HAS HAD A tremendous impact upon America. Lionel Trilling, prominent literary critic and Columbia University professor, stated in 1955, "In many respects, of course, Freud's ideas have established themselves very firmly in our culture. It is not only that the modern practice of psychiatry is based upon them. They have had a decisive influence upon our theories of education and child-rearing. They are of prime importance to anthropology, to sociology, to literary criticism; even theology must take account of them. We may say that they have become an integral part of our modern intellectual apparatus."[1] In 1955, this was not an overstatement.

The revelations of the electron microscope in the field of cellular structure, physiology, and pathology have made "ancient good uncouth."[2] Freud, an expert microscopist, would dearly have loved to have used this instrument, and it would have precluded the advent of Freudianism. When the 30-year-old Freud entered the private practice of Neurology in 1886, neurological therapeutics was a scientific desert. Freud at this time knew as much as anyone, perhaps more than anyone, about the anatomy of the nervous system, but no one anywhere knew how it functioned. His publications in clinical neurology in the next ten years solidly established his world position in Neurology.

Percival Bailey, MD, one of America's most illustrious neurosurgeons, has read everything that Freud wrote, and in the original German (because of the many poor translations). He has published a small book, *Sigmund The Unserene,* based upon his three Norman Wait Harris Lectures at Northwestern University in April, 1963.[3] I urge every American parent, every judge, lawyer, penologist, social worker, teacher, and doctor to read this slender volume. A knowledgeable and widely traveled European lady has remarked, "Freud has crept into every American home. This is not so in Europe. Parents there have preserved their image, their prerogative, and their control of their children."

In his Prologue, Bailey has written, "It is necessary to add that my animus is not directed toward Freud. Although I have regretfully come to the conclusion, after long and earnest study, that he failed, I have profound sympathy with his lifelong struggle to comprehend himself and others. My animus is directed towards the overweeningly hypertrophied and distorted influence which his movement has attained in these United States, as he foresaw and feared. In this way, it has, in my opinion, done great damage to psychiatry as well as to our civilization in general."

The most obtrusive and alarming aspect of the current American scene is the overt and manifest violence being displayed.

Of course, we can not blame Freud and his followers for our Vietnam *faux pas,* nor for American negro slavery and its burgeoning consequences. It is the *manner* in which our society has met these crises which reveals the Freudian element and characteristics. Perhaps the most disastrous effects of these ideas has been on our courts and penology, and for this we have to place the responsibility squarely on those medical advisors to our courts and penal institutions.

Most of these advisors are of the Freudian persuasion. Two who are not of this persuasion have been the moving spirits in the penologically most enlightened State, Maryland, and in development of far-sighted legislation leading to the founding of America's most advanced Patuxent Institution at Jessup, Maryland. I refer to Drs. Manfred S. Guttmacher and John C. Whitehorn.[4]

An example of the unscientific and unrealistic thinking that characterizes much of the Freudian approach is the following. The medical director of a large state hospital stated that of 80 criminally insane released from the hospital, less than nine per cent ended up in prison or jail, and less than four per cent returned to mental institutions. The total released was 120, but 40 cases could not be traced. It would seem that the 40 cases (33 per cent) who broke parole and/or fled the State must be considered failures, which adds up to 43 per cent failures and 57 per cent successes. Moreover, the discharges were "between 1961 and 1966," and the report was made October 11, 1967—a very short follow-up on about half the discharges. These were criminally insane persons![5]

One of the purposes of imprisonment is certainly the return of the criminal to society as a changed person, but it must be more than 50 per cent certain that he *is* a changed person. The *primary* purpose of imprisonment is the protection of society. Our courts today are making fantastic releases. When the criminal within a few days or weeks of his release repeats his crime, or commits an even more serious one, the courts often reply that the release was on the suggestion of the psychiatrists. Surely, no penal reform program can be called successful when it results in an increase in the number of criminal offenses!

All the surveys and reports agree that crime is increasing, and agree that 60 to 90 per cent of offenders are repeaters.[6,7,8] An important English study contains the following, "Furthermore, it is patently evident that there is a hard core of mentally abnormal offenders who are incorrigible in terms of the penal system and incurable in terms of the mental-hospital system."[9] Perhaps the most revealing study of the orthodox Freudian approach to crime is Walter Bromberg's *Crime and the Mind.*[10] Dr. Bromberg was one of a group of three Freudian psychiatrists who testified before the California Legislature in its consideration of a program for castration of certain sex offenders, and persuaded the Legislature to abandon the project.[11]

It must be pointed out that Freud wrote no books or articles on crime or on the insane. He did not seek to apply his theories and discoveries to the field of crime. The attempt to apply his theories to the criminal mind is altogether the extension by his followers, principally in America, but to some extent on the other side of the Atlantic.

Freud quite apart, the control and treatment of crime has been one of the most difficult problems of organized society ever since the earliest civilizations. The death penalty developed in England a barbarity unknown in Roman law.[12] Lombroso developed the thesis that the criminal was to be identified by a set of abnormal, physical stigmata. Goring destroyed this generalization, but erected others, including that the criminal was of lower intelligence, and that the criminal trait was hereditary,[13] but doubt has been cast on these contentions. Both these investigators were Doctors of Medicine specializing in criminal administration.

Despite the present writer's obvious anti-Freudian bias, he recommends Karl Menninger's *The Crime of Punishment.*[14] Due to the activities of this wise and humane physician, Kansas is one of the few States to have a felon's "diagnostic center." The state now sends all prisonbound felons to the center for exhaustive tests by four full-time psychiatrists and numerous other experts, with the result that half of these men get probation. Among all such Kansas probationers, the failure rate has dropped to 25 per cent, much less than in other states.[15]

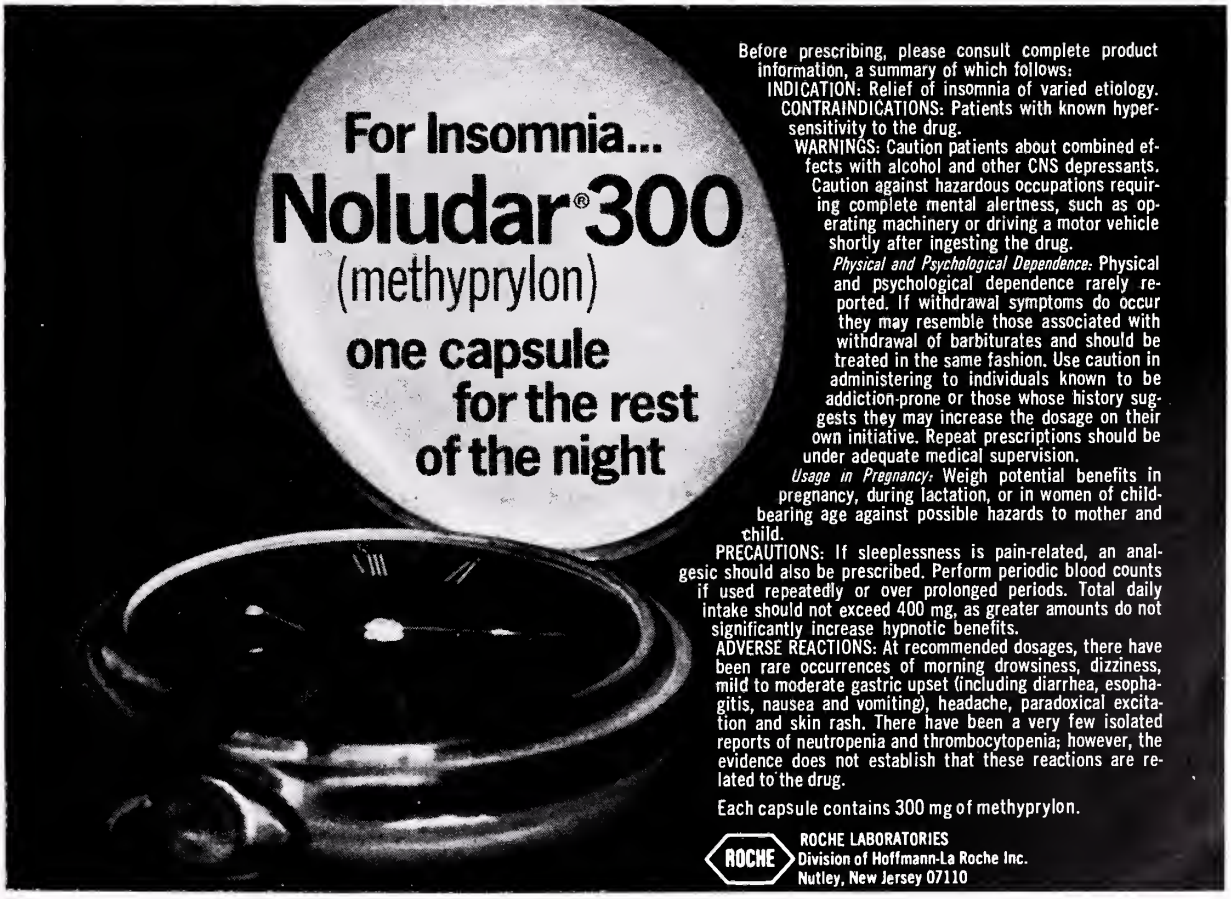
The essential concepts in relating the influence of Freudian thought upon the contemporary American scene are two. The first, Freudianism is the dualistic philosophy, i.e., the human being is constituted by two mutually irreducible elements, mind and matter, postulating that mind is essentially an added element, introduced at some unknown moment into the body. Dualism is the

opposite of monism, which concept is that mind is the function of the brain, and has no existence apart from the brain. This dualistic philosophy places Freud in direct opposition to his famous contemporary, Pavlov, whose science of higher nervous activity, the science of cerebral physiology, is strictly monistic. The Pavlovian school of psychology is being developed in America by Gantt at Johns Hopkins. The second definitive characteristic of Freudianism is its determinism, its doctrine that all acts of the will result from causes which determine them. Freud's concept of the determining power of infantile experiences to control adult reactions to experience is very well known.

Consider, now, the attitudes of the Freudian psychiatrist or penologist faced with the decision concerning the probation or parole of a convicted felon. We have noted the creation in Topeka of a diagnostic clinic, which we hope will be the first of many such in this national crime crisis. The Freudian, we think, will suggest the probation and parole of persons more in need of permanent or continued incarceration, and we think the present crime picture is the result of decisions of this kind—decisions of a sentimentalist rather than of a scientific nature. This is not to deny that our jails and prisons are horrible, are failing, and are desperately in need of sweeping reform.[15]

As a case in point, among the scores in my files is the case of R.L.R., a 25-year-old man who had broken down mentally in 1963, had stabbed his father in the chest with an ice pick in 1965, and was discharged from the Colorado State Hospital in June of 1966. As an out-patient at Fort Logan Mental Hospital since that date, on June 7, 1968 he plunged a 4-inch hunting knife into a child's throat, a child he did not know at all, as the latter played in a school yard. The child recovered after a bystander raced him to a hospital, where prompt surgery was performed.

One can only conjecture (I have made two efforts to learn officially) as to the reasoning and evidence by which the psychiatrists decided that this man was well enough to be returned to society. Also, one can only conjecture as to the evidence upon which two


For Insomnia...
Noludar® 300
(methyprylon)
one capsule
for the rest
of the night
Before prescribing, please consult complete product information, a summary of which follows:
INDICATION: Relief of insomnia of varied etiology.
CONTRAINDICATIONS: Patients with known hypersensitivity to the drug.
WARNINGS: Caution patients about combined effects with alcohol and other CNS depressants. Caution against hazardous occupations requiring complete mental alertness, such as operating machinery or driving a motor vehicle shortly after ingesting the drug.
Physical and Psychological Dependence: Physical and psychological dependence rarely reported. If withdrawal symptoms do occur they may resemble those associated with withdrawal of barbiturates and should be treated in the same fashion. Use caution in administering to individuals known to be addiction-prone or those whose history suggests they may increase the dosage on their own initiative. Repeat prescriptions should be under adequate medical supervision.
Usage in Pregnancy: Weigh potential benefits in pregnancy, during lactation, or in women of childbearing age against possible hazards to mother and child.
PRECAUTIONS: If sleeplessness is pain-related, an analgesic should also be prescribed. Perform periodic blood counts if used repeatedly or over prolonged periods. Total daily intake should not exceed 400 mg, as greater amounts do not significantly increase hypnotic benefits.
ADVERSE REACTIONS: At recommended dosages, there have been rare occurrences of morning drowsiness, dizziness, mild to moderate gastric upset (including diarrhea, esophagitis, nausea and vomiting), headache, paradoxical excitation and skin rash. There have been a very few isolated reports of neutropenia and thrombocytopenia; however, the evidence does not establish that these reactions are related to the drug.
Each capsule contains 300 mg of methyprylon.
ROCHE
ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

other psychiatrists now aver that the man changed his mind about the assault, even as he stabbed the 6-year-old boy, because "for this reason he did not go after the jugular vein." Actually, the jugular vein *was* lacerated, but the carotid artery escaped injury. The posterior and lateral muscles on the injured side were severed to the bone. Conversation with a lay worker in the institution obtained the answer, "We all knew that this man should never be released."

One may wonder why Freud's ideas and speculations, so little regarded in Europe, have been so widely accepted in America. Wells' writings on Freud, Pavlov, and Freudianism, introduced to me by Bailey's *Sigmund The Unserene,* need to be much more widely known. Wells,[16] a philosopher, states "It can be said, in the most general terms, that Freud's success in America was in large part due to the fact that his philosophy was entirely consonant with the predominant national outlook. The dualistic, subjective idealism of his approach to the human mind posed little scientific danger to the semiofficial ideology. On the contrary, it by and large enhanced the ideology by giving obscurantism a broader base in the mind and culture of the American people. The exact contrary, of course, was true of Pavlov's philosophy. The consistent and militant monistic materialism of the science of higher nervous activity was, and is, in the sharpest possible opposition to the prevailing manner of thought. This in itself is sufficient to account for the relatively slow rate of recognition of Pavlov's science. But there was, and is, at least one more powerful influence at work. For literally thousands of years mankind has been taught to view the human mind or soul as some kind of extraordinary and miraculous phenomenon requiring an extra-mudane, extra-scientific explanation. This mysterious and mystical approach to mind is deeply imbedded in all of us, and is not easily uprooted. . . . This final demonstration, that mind is a function of the brain, is the greatest contribution to the science of higher nervous activity. . . . Full acceptance of the science of higher nervous activity would entail the transformation not only of psychology and psychiatry into mature sciences, but also eventually of the thinking of each and every human being."

This can not be stated better, or more clearly. It is modernism at its best. Putting it clinically and bluntly, into rather more common speech, let it be said that only in that culture in which obscurantism, mysticism, miracle of all kinds, spirtualism, mental telepathy, can arise and flourish, only in that culture in which an ancient book is called "infallible," written every word by fallible men, only in such a culture could Freudianism take root and flower.

For civilization to come to America, the current sentimentalist, dualist, subjective idealism must develop a sufficiently wide streak of objective monistic materialism that we can approach the facts of our lives and this world with rationalism as our guide rather than intuition and mysticism. •

REFERENCES

[1] Trilling, Lionel: Freud and the Crisis of our Culture, Beacon Press, Boston, 1955.
[2] Emery, Alan E. H.: Heredity, Disease, and Man: Genetics in Medicine, Univ. Calif. Press, 1968.
[3] Bailey, Percival: Sigmund The Unserene, Charles C. Thomas, Springfield, Illinois, 1965.
[4] Guttmacher, Manfred S.: The Role of Psychiatry in Law, Charles C. Thomas, Springfield, Illinois, 1968.
[5] Meredith, Charles: Rocky Mountain News, October 12, 1967, page 55.
[6] The Challenge of Crime In A Free Society: United States Government Printing Office, Washington, D.C., February, 1967.
[7] Crime In The United States: Uniform Crime Reports—1967, U. S. Government Printing Office, August 27, 1968.
[8] Uniform Crime Reports—1969, U.S.G.P.O., August 13, 1970.
[9] Rollin, Henry R.: Unprosecuted Mentally Abnormal Offenders, British Medical Journal 1:831-835, March 27, 1965.
[10] Bromberg, Walter: Crime and the Mind, Macmillan, New York, 1965.
[11] Campbell, Horace E.: The Violent Sex Offenders, R.M.M.J., 64:40-43, 1967.
[12] Wood, A. E., and Waite, J. B.: Crime and Its Treatment, Amer. Book Co., 1941, page 469.
[13] Idem, page 52.
[14] Menninger, Karl: The Crime of Punishment, Viking, New York, 1968.
[15] U. S. Prisons: Schools for Crime: Time Magazine, Jan. 18, 1971.
[16] Wells, Harry K.: Sigmund Freud: A Pavlovian Critique, Pavlov and Freud: II, International Publishers, N. Y. 1960, with Permission.

Thymectomy in myasthenia gravis

Albert J. Kukral, MD, and Donald W. Ryan, MD, Denver

MYASTHENIA GRAVIS is a relatively uncommon disease. By estimate there are 25,000 cases in the United States and 80 to 90 cases in Colorado. It was first described by Thomas Willis[1] in 1672 who referred to the disease as "bulbar palsy without visible anatomical changes." Erb in 1879 more fully described the condition, and it was named by Jolly in 1895. It is characterized by faulty neuro-muscular transmission at the motor end-plates of striated muscles. The result is pathologic fatigue of localized or general muscle groups. The condition is worsened by activity or stress and improved by cholinergic compounds.[2]

The physiology of the thymus gland has been poorly understood, but it has been long suspected that some relationship existed between thymic pathology and myasthenia gravis.[3-4] It has been observed that thymectomy in some patients produces salutary results. Blalock[5] in 1939 first directed attention to surgery in the treatment of myasthenia gravis. Since 1941 thymectomy has been employed more frequently in the treatment of selected patients at the myasthenia gravis clinic of Massachusetts General Hospital.[6-7] During the past fifteen years enthusiastic reports appear from many quarters suggesting thymectomy should be carried out more frequently in selected cases of myasthenia gravis.[7-8-9-10] Keynes'[8] series of well over 250 cases represents the largest collection of thymectomies.

About 15 per cent of patients with myasthenia gravis have a benign thymic tumor and about 50 to 75 per cent with thymoma have myasthenia gravis. Shields[11] points out that histologically the thymus gland is normal in 15 per cent of myasthenics, and 85 per cent have lymphocytic infiltration and formation of germinal centers and lymphoid hyperplasia.

Selection of Patients for Thymectomy

It is generally agreed that the myasthenic patient under 40 years of age (preferably females) whose disease has been of relatively short duration, and who is progressively losing effective control with cholinergic medication and/or requiring increased dosage with less efficacy is a candidate for thymectomy. Many authors[7-8-9-10] feel that while the male patient may be less likely to benefit from thymectomy, he should not be denied the opportunity of a possible good result.

The diagnosis is confirmed by (1) thorough neurologic examination demonstrating pathologic muscular fatigue, (2) the edrophonium chloride (tensilon) test and, (3) the E.M.G. and bulb ergograph. The provocative curare test is infrequently necessary and very hazardous. Chest x-ray or tomography should rule out a thymic tumor which, if found, should be resected because of its presence and not with the primary expectation of altering the myasthenia gravis. The state of the thyroid gland should be also evaluated because of the frequent association of myasthenia gravis with thyrotoxicosis. Close cooperation between the neurologist, surgeon, and anesthesiologist is mandatory in patients undergoing thymectomy for myasthenia gravis.

Preoperative Preparation

Thyectomy is always done as an elective operation—never as an emergency! The patient should be stable with his disease. Calm reassurance to these anxious and tense patients is extremely important. Any dietary and metabolic deficits should be corrected. Some authors[9-12] feel preoperative vital capacity should be done, and if below 1800 cc, one can predict respiratory difficulties in the

postoperative period, and these patients should have a tracheotomy at the time of thymectomy. The day before surgery, we give cholingeric medication parenterally to establish the dosage by this route. Atropine with mild sedative (vistaril) is the preoperative medication. No respiratory depressants (morphine, demerol, or barbiturates) are given.

Operative Technic

During anesthesia no curare analogues are given since the patient may be extremely sensitive to this muscle relaxant. Our anesthesiologists prefer cyclopropane or halothane as the anesthetic agent, with high concentration of oxygen.

All of our patients were operated through a transverse sternotomy at the level of the sterno-manubrial angle which afforded excellent exposure. We prefer this to a median sternotomy since it does not jeopardize the tracheotomy site. We have had no experience with the trans-cervical approach suggested by Kirschner.[13] Great care is taken not to violate the pleural spaces. A routine cuffed tracheotomy is performed at the time of thymectomy.

The thymus gland is easily identified and is usually in two lobes. To avoid troublesome bleeding the vascular pedicles of the internal mammary arteries and the innominate veins should be carefully ligated.

A sump catheter drain is placed in the anterior mediastinum and brought out through a stab wound at the xiphoid and connected to low suction. Tube thoracostomy is employed when the pleural spaces are entered.

Postoperative Care

Patients are transferred to the intensive care unit where they can be given assisted respiration if respirations are spontaneous, or placed on a respirator if apneic. These measures alleviate incisional pain and thus minimize splinting during respiration in an already anxious and apprehensive patient. We give intermittent cholinergic medication to maintain spontaneous respiration in the early postoperative period, determined by the tensilon test and frequent testing of muscle strength. If medication is needed, meticulous attention to the dosage is required to avoid cholinergic crises and the undersirable muscarinic effects, such as excessive bronchial secretions. Determination of arterial blood gases and vital capacity serve as guidelines to adequacy of ventilation. The usual tracheotomy care is employed utilizing sterile technic. Frequent tracheal culture and sensitivity studies aid in the use of anti-microbics. The tracheotomy cuff is deflated every hour, and humidified air is used. If bronchoscopy is required, a ventilating scope is recommended, and tensilon prior to bronchoscopy may allow the patient spontaneous respirations during the procedure.[10] There may be a dramatic decrease in the vital capacity if any respiratory insufficiency develops. This situation may result from (1) worsening of the myasthenia gravis, (2) lack of cholinergic medication, (3) thoracic splinting secondary to incision, (4) apprehension and stress of tracheotomy, (5) pneumohemothorax, (6) pneumomediastinum, (7) atelectasis, (8) residual depression after anesthestic, (9) associated disease (thyrotoxicosis).

Two types of myasthenic emergencies can develop. 1. *Myasthenic crisis* still is one of the most dreaded emergencies and usually occurs in the first 72 hours after surgery. This condition is a progressive weakness of bulbar and respiratory muscles to a point at which adequate ventilation cannot be maintained without assistance. This situation requires both cholinergic medication and mechanical respiratory assistance. 2. *Cholinergic crisis* results from an overdose of cholinergic medication and frequently is indistinguishable from myasthenic crisis. Prior to the time this was recognized, many patients died as a result of overutilization of the cholinergic medication in patients erroneously having been diagnosed as in myasthenic crisis. Kott[14] states the first step in evaluating a myasthenic with rapidly increasing bulbar and respiratory weakness is to assure adequate ventilation and open airways. Once the ventilatory problems are under control, one has time to differentiate between the myasthenic and cholinergic crises. If the diagnosis is in doubt, tensilon (2 to 10 mg iv) can be used to determine the need of cholinergic medication. It is commonly agreed that fatality is usually attributed to the complications of ventilation. Today these problems should be greatly reduced.

Prazák et al[12] state in their series of 20 thymectomies that 50 per cent developed myasthenic crises which were impossible to control except by artificial respiration. They feel as we do that one should not categorically withhold cholinergic medication in the immediate postoperative period. The usual medications such as prostigmine, tensilon, atropine, and mestinon are kept at the patient's bedside at all times, and the attending nursing personnel must be familiar with their use in an emergency. The anticipated symptoms of cholinergic overdose (cramps, salivation, vomiting, visual disturbance) may be absent while the toxic effect on the respiration may be severe.[9] Accordingly, these drugs may not be required except as dictated by tensilon testing, and the dosage should be tailored to the exact need and usually in small amounts.

The tracheotomy is plugged and later removed when unassisted satisfactory respiratory volume and maintenance of normal blood gases is achieved at rest.

CASE PRESENTATIONS

Case 1. A 33-year-old white mother of three children was well until four days prior to diagnosis. Without apparent cause she suddenly and progressively developed severe diplopia, dysarthria, dysphagia and ptosis. On 2/15/66 tensilon 10 mg iv produced dramatic reversal of symptoms. Over the next three months she was medicated with mestinon 90-120 mg q.3.h. with some continued weakness. Thymectomy was recommended.

Chest x-ray, tomos, PBI, and EKG were negative.

On 5/24/66 total thymectomy and cuffed tracheotomy was performed. Postoperative course was smooth (neither pleural space entered). Pathologic examination showed 30 gram thymus "without involution (myasthenia gravis) and no histologic evidence of hyperplasia or neoplasia."

Patient was discharged on 10th postoperative day on mestinon 60 mg q.4.h. with full activity. By August 1966 she was square dancing, and medication was reduced to 60 mg mestinon daily with no symptoms. Since February 1967 all medications have been discontinued and patient is enjoying vigorous activity.

Case 2. A 21-year-old white mother of one child had a six month history of progressive intermittent fatiguability, slurred speech and marked muscle weakness of all extremities causing her to nearly drop her baby on several occasions. Tensilon 8 mg iv produced marked improvement (7/22/66). Three months after onset of symptoms and three months before diagnosis of myasthenia, she had her left first rib removed for alleged thoracic outlet syndrome. Actually hand-shoulder weakness was secondary to myasthenia gravis. Started on 60 mg of mestinon q.i.d. This gradually increased to 600 mg mestinon daily over the next three months. This dosage did not control disease and she was unable to care for her one child. Recommended for thymectomy.

Chest x-ray was negative except for absent left 1st rib. Tomos, EKG negative, PBI, T_3 were normal.

Total thymectomy and cuffed tracheotomy bilateral tube thoracostomy were performed on 10/27/66. During the postoperative course there was a hemolytic staph wound infection which responded to appropriate anti-microbics.

Pathologist reported 18 gram thymus, "hyperplasia, thymus, with involution, focal cyst, thymic (developmental)."

Patients was discharged on 13th postoperative day on 60 mg mestinon q.4.h. free of all symptoms. The cholinergic medication gradually reduced to 30 mg prostigmine b.i.d. on which she is free of all symptoms and at full activity.

Case 3. A 29-year-old white female gave a three month history of progressive weakness of neck and upper extremities, diplopia and dysphagia. Diagnosis was confirmed with tensilon test. Myasthenia became increasingly refractive and sensitive to medication. 60 mg mestinon q.4.h. caused frequent cholinergic crises.

PBI was 4.1. Liver function tests were negative. Chest x-ray and tomos were negative, EKG negative; vital capacity was 1600 cc with dyspnea.

On 8/21/67 patient had total thymectomy, cuffed tracheotomy and right tube thoracostomy. Pathologic examination reported atrophy of thymus weighing 14 grams.

Postoperativity prostigmine, atropine and mestinon were given in varying doses. There was clinical improvement with persistence of ptosis, respiratory weakness and dysphagia. She was discharged on the 10th postoperative day on mestinon 60 mg q.4.h. except during nighttime. She was readmitted five days later because of increasing dysphagia and dyspnea (vit. cap 700 cc). A tensilon test disclosed increasing weakness and blurring of vision and weakness in both lower and upper extremities. Sudden progressive dysphagia developed requiring more cholinergic medication and a second tracheotomy to control respiration. After a slow convalescense discharged on her 30th hospital day on 30 mg mestinon q.4.h. This patient required almost two years of gradual improvement to achieve an excellent result of full vigorous activity and takes no cholinergic medication at the present time.

Case 4. A 24-year-old Panamanian female had generalized muscle weakness of variable intensity for about two years. When first seen by a physician a thyroid mass was discovered with possible thyrotoxicosis and she had thyroidectomy with no

improvement in her muscle weakness. Subsequently she was admitted to another hospital because of persistence of symptoms. She had a gamut of tests carried out without a specific diagnosis. Several months later she had a sudden collapse with marked weakness, diplopia and falling, while getting out of an auto, and she could not arise. She was readmitted. All symptoms improved with mestinon in large doses. Diagnosis of hyasthemia was made.

Chest x-ray, tomos, routine laboratory, EKG, PBI, T_3 all negative. EMG was consistent with myasthenia gravis.

On 11/6/67 she had total thymectomy and cuffed tracheotomy. Postoperative course was uncomplicated (neither pleural space violated). Pathology reported of thymus with 9 grams hyperplasia, lymphoid tissue, consistent with clinical picture of myasthenia gravis.

She was discharged on 20th postoperative day on 120 mg of mestinon daily. She did well until she became pregnant three months after thymectomy and shortly thereafter required 360 mg mestinon daily. Even with this medication some muscle weakness and diplopia returned. Transient neonatal myasthenia gravis was noted in the offspring. (Over 50 per cent of myasthenic patients will exhibit transient neonatal myasthenia in their offsprings which usually lasts one to two months and usually requires no cholinergic medication). Patient is presently on 120 mg mestinon daily with no symptoms and at full activity.

Case 5. A 25-year-old white female R.N. gave a five to six year history of dysarthria, progressive dysphagia and marked progressive fatiguability of all extremities. She found difficulty in giving her nurse's report because of difficulty with speech and could not take repeated blood pressure reading because of muscle weakness in her hands. Myasthenia was diagnosed with tensilon in March 1968, and she treated with mestinon 360 mg daily which did not totally control her symptoms. Thymectomy was recommended three months after diagnosis made.

Chest x-ray, tomos, EKG, routine laboratory, I 131, PBI were all negative.

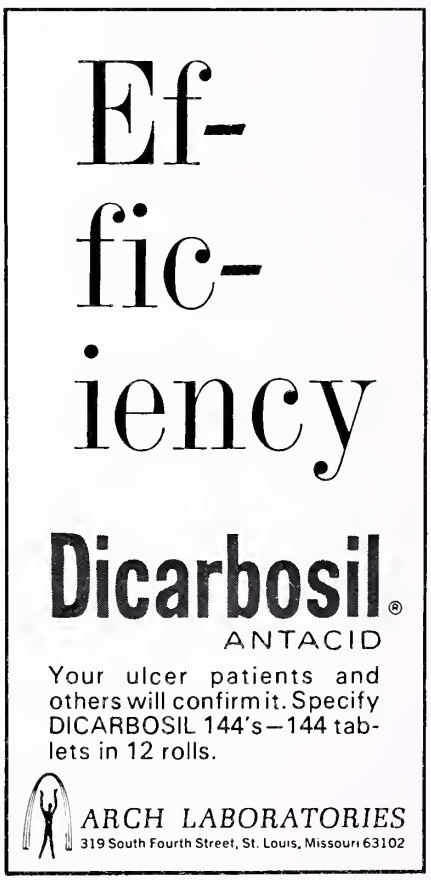
On 7/30/68 patient had total thymectomy, cuffed tracheotomy, and bilaterial tube thoracostomy. During the postoperative course: there were several bouts of respiratory insufficiency requiring respirator. Pathologic report was "hyperplasia, thymus, cysts, thymus multiple, small simple, no neoplasia." The gland weighed 28 grams.

She was discharged on 13th postoperative day on 30 mg mestinon daily which completely controlled symptoms and allowed her to return to full activity. Presently she is on no medication and carries on full vigorous activity of heading up a coronary care unit.

Results

In the early era of thymectomy for myasthenia gravis, Schwab et al[6] cited a mortality rate ranging from 7 to 10 per cent. Most recent series indicate that mortality rate should be below two per cent.[6-9-10] The chief cause of death is pulmonary complication with increased bronchopulmonary secretions, inability to clear these, and bronchospasm—all of which lead to inadequate gas exchange. The second cause of death is cholinergic crisis produced by toxic effect and/or increased sensitivity to cholinergic medications. A true myasthenic crisis in the immediate postoperative period is relatively uncommon.

Schwab[6] observed that in the early experience of thymectomy, 75 per cent of the patients developed some pulmonary complications and 50 per cent required tracheotomy. To obviate this hazard one should perform a cuffed tracheotomy at the time of thymectomy and transfer the patient to a respiratory



care facility. Many authors feel that cholinergic medications are not necessary in the immediate postoperative period although we have not been able to withhold all cholinergic medication and still maintain spontaneous respiration, which we feel is desirable. With this approach we have carried out thymectomy in five female patients with no deaths.

Buckberg[9] lost one patient out of 48 who underwent thymectomy as compared to 21 deaths (20%) in 103 followed over the same eight years when treated with cholinergic medication alone; with death attributed to myasthenia in 15 of this 21 deaths (75%). Perlo[7] in 1966 reported an evaluation of 1355 patients treated at the myasthenia gravis clinics of the Massachusetts General and New York Mt. Sinai Hospitals. In this study he reported a mortality under two per cent and cited similar favorable results in 188 patients treated with thymectomy with a follow-up to 20 years. Of these, 89 per cent were improved with 38 per cent experiencing complete remission and nine per cent remained unchanged. The remainder of the patients in this study were treated medically and followed 30 years. Of these, 32 per cent were improved, of which, 14 per cent show complete remission and 62 per cent remain unchanged. Eaton and Clagett[15] reported 140 cases, 53 of whom had thymectomy and the remaining 87 remained a medically controlled group. In this series after thymectomy, 53 per cent of the patients had good results while of those medically treated only 20 per cent exhibited comparably good results.

Perlo[7] and Buckberg[9] report on male patients without thymoma who underwent thymectomy. Although no large series of male patients undergoing thymectomy are available, these authors feel that thymectomy in the selected male patient should approach those observed in the female. When properly selected, one can expect 65 per cent to 75 per cent good to excellent results after thymectomy. For unexplained reasons the improvement may not be apparent in the early postoperative period, and one must defer final judgment for a period of at least one year postoperatively. The best results were obtained when the thymus showed simple hyperplasia and especially good results when this is associated with germinal center formation.

Summary

1. We have presented five myasthenic female patients under 35 years of age and without thymoma who were treated with thymectomy.

2. Excellent results were achieved and maintained in all five patients followed 29, 37, 40, 50, and 55 months.

3. On the basis of our results and the published data of mortality rates with and without thymectomy, at present we would recommend early and more aggressive surgical approach to the younger myasthenic patient who is not responding to medical management. We suspect that thymectomy may be worthwhile in all myasthenics regardless of severity. •

REFERENCES

1 Grinker, R. R., Bucy, P. C., and Sahs, A. L.: Neurology, 5th Edition Charles C. Thomas, Springfield, Ill., 1960.
2 Walker, M. B.: Treatment of Myasthenia Gravis with Physostigmine, Lancet 1:1200, 1934.
3 Nastuk, W. L., Plescia, O. J., and Osserman, K. E.: Changes in Serum Complement Activity in Patients with Myasthenia Gravis, Proc. Soc. Exper. Biol. and Med., 105:174, 1960.
4 Nastuk, W. L., et al: Effect of Thymectomy in Antimuscle Antibodies, Serum Complement and Clinical Status in Myasthenia Gravis, Arch. Neurology, 15:1, July 1966.
5 Blalock, A., Mason, M. F., Morgan, H. J., and Riven, S. S.: Myasthenia Gravis and Tumors of the Thymus Region, Ann. Surg. 110:544, 1939.
6 Schwab, R. S., Wilkins, E. W., Jr., Head, J. M., Pontoppidan, H., and Viets, H. R.: Thymectomy in Myasthenia Gravis, J.A.M.A., 187:850, 1964.
7 Perlo, V. P., Poskanzer, D. C., Schwab, R. S., Viets, H. R., Osserman, K. E., and Genkins, G.: Myasthenia Gravis: Evaluation of Treatment in 1355 Patients, Neurology, 16:431, 1966.
8 Keynes, G.: Surgery of the Thymus Gland, Lancet, 1:1197, 1954.
9 Buckberg, G. D., Herrman, C., Jr., Dillon, J. B., and Mulder, D. G.: A Further Evaluation of Thymectomy for Myasthenia Gravis, Jour. Thoracic and Cardiovascular Surgery, 53:401, Jan.-June 1967.
10 Cohn, E., Schlezinger, N.: Thymectomy in Myasthenia Gravis: Operative Technique and Postoperative Care, Surgical Clinics of North America, 47:Oct. 1967.
11 Shields, T. W.: The Thymus Gland, Surgical Clinics of North America, 49:61, Feb. 1969.
12 Prazák, M., and Placák, B.: Postoperative Care After Thymectomy for Myasthenia Gravis, International Surgery, 51:388, May 1969.
13 Kirschner, P. A., Osserman, K. E., and Kark, A. E.: Studies in Myasthenia Gravis—Transcervical Total Thymectomy, J.A.M.A., 209: August 11, 1969.
14 Kott, S. H.: Crisis in Myasthenia Crisis, Medical Clinic of No. America, 53:285, March 1969.
15 Eaton, L. M., Clagett, O. T., Good, C. A., and McDonald, J. R.: Thymectomy in Treatment of Myasthenia Gravis; Report Based on 32 Cases, Arch. Neurology and Psychiatry, 61:467, 1949.

DON'T INCORPORATE.

For any Reason.

Not until you are sure you received unbiased, expert advice from a professional medical management consultant.

Incorporation is really a business decision. And you should get **unbiased, experienced** business advice.

Some Doctors should incorporate. Others should not. It's as simple as that. And no one can give you good advice unless he does an intelligent corporate feasibility study of your practice.

We have no axe to grind because we have nothing to sell—no insurance—no investments—no forms—nothing—except the best corporate feasibility study in the country.

Pardon the immodesty, but we are experts.

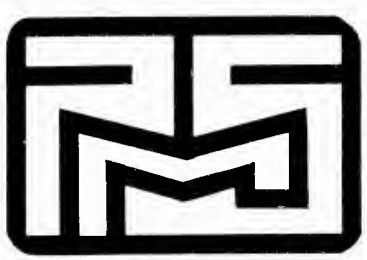
We work exclusively with physicians in private practice and we know the business side of medical practices inside and out.

We will do a feasibility study in your practice for $85.00 and you can rest assured that you have received **unbiased, expert** advice.

Our firm is nationwide, but our home is in the Rocky Mountains—in Denver. There is a PMS consultant in your Area. Just give him a call:

Albuquerque, New Mexico	Herb Hughes	(505) 298-5809
Albuquerque, New Mexico	Joe Listek	(505) 298-5809
Billings, Montana	Harry Miller	(406) 248-6203
Boulder, Colorado	George Hunt	(303) 444-3149
Colorado Springs, Colorado	George Schrameyer	(303) 598-2042
Denver, Colorado	Dick McMullen	(303) 986-2394
Denver, Colorado	Jim Meador	(303) 623-7165
Denver, Colorado	Ed Rarden	(303) 623-7165
Ogden, Utah	Doyle Allen	(801) 394-5828
Santa Fe, New Mexico	Don Hughes	(505) 983-1314

Or clip the coupon below and drop it in the mail to our Central Office in Denver:



PRACTICE MANAGEMENT SERVICES

601 BROADWAY
DENVER, COLORADO 80203

I would like to have an unbiased corporate feasibility study for my practice. Have your consultant contact me.

Name _____

Address _____

Telephone _____

City _____ State _____ Zip _____

Department of community and family medicine:

A new program at the University of Utah

C. Hilmon Castle, MD, and Robert Kane, MD,
Salt Lake City, Utah

Challenges and opportunities in the intermountain west.

The Department of Community and Family Medicine, established in July, 1970, is in reality an amalgamation of two distinct new disciplines. The terms "community medicine" and "family medicine" share a confused heritage, but they have evolved with rather distinct, although overlapping spheres of activity. Community medicine is generally defined as the discipline which deals with the identification of health problems in the community and the development of solutions for them. Unlike "clinical medicine," it is concerned with groups of people rather than individuals. Rather than providing direct patient care services, this discipline focuses on supporting and supplementing existing community health systems. Relying heavily upon the technics of epidemiology, community medicine encompasses the areas of ecology, behavioral science, economics, health care services organization, and medical education.

Family medicine, on the other hand, refers to the newly established specialty of family-oriented care. It stresses continuous, coordinated and comprehensive management of the patient—as opposed to episodic encounters at times of stress. The family physician is defined by the American Medical Association in its "Essentials of an Approved Residency in Family Practice," as follows:

> The family physician is defined as one who: 1) serves as the physician of first contact with the patient and provides a means of entry into the health care system; 2) evaluates the patient's total health needs, provides personal medical care within one or more fields of medicine, and refers the patient when indicated to appropriate sources of care while preserving the continuity of his care; 3) develops a responsibility for the patient's comprehensive and continuous health care and when needed acts as a coordinator of the patient's health services; and 4) accepts responsibility for the patient's total health care, including the use of consultants, within the context of his environment, including the community and the family or comparable social unit.[1]

The Department of Community and Family Medicine will provide leadership in both these important fields, as well as offer teaching, service, and research opportunities. Together with other clinical departments in the College of Medicine, the Department will contribute to the improvement of the health services delivery system and will help develop physicians who wish to practice comprehensive clinical medicine.

Starting a new department which encompasses two separate but related emphases requires a statement of direction and overall goals. The goals guiding the department's development as it began in 1970 can be summarized as follows:

1) to develop competence in, and mechanisms for, studying and responding to current needs in health care and medical education;
2) to create an educational environment which will encourage medical students and physicians to learn community medicine and/or family medicine;

3) to collect and study the relevance of the information available on the external factors (i.e. social and environmental) which influence health and disease in humans, and to apply this information in demonstration projects and in the teaching of medical students, physicians, and others;

4) to establish operational models for delivering and studying health care in which students and physicians will learn through direct experience;

5) to provide leadership in planning, developing, and improving the health care and educational programs in the Intermountain Region.

In many respects these departmental goals are attempts to fulfill the needs identified by the Flexner report over half a century ago:

> . . . the physician's function is fast becoming social and preventive, rather than individual and curative. Upon him society relies to ascertain, and through measures essentially educational to enforce, the conditions that prevent disease and make positively for physical and moral well-being.[2]

Various disciplines in addition to medicine (such as epidemiology, biostatistics, environmental health, education, management, economics, social and behavioral sciences, etc.) are essential to this new department. As representatives of these fields are added to the faculty, more specific objectives and operational projects will emerge. Also, interactions between this Department and other organizations, agencies, institutions, individuals, and medical school and university departments will influence priorities and operational projects.

The following programs (divided, despite considerable overlapping, into education, research, and service categories) are either in effect at present, or will be within the Department's first year.

Education

Teaching programs of the Department have been developed for medical students, residents, practicing physicians, and other health professionals. At the present time all undergraduate programs have been designed as elective experiences for those medical students who are interested in learning more about community and family medicine. Freshman students have the opportunity to participate in either the patient-advocate program or student-faculty discussion groups. Departmental electives can be summarized as follows:

Patient-Advocate Program: As a patient advocate, the medical student serves as the link between a particular family and the medical care system. The student interprets the patient to the system and vice-versa. Through close identification with the consumer, the student undergoes a set of experiences which should help in understanding patients and their problems. Opportunity to experience, firsthand, problems surrounding the provision and procurement of modern comprehensive health care, followed by opportunities to discuss these observations with the faculty in small group seminars, should help to provide the student with perspectives and insights useful in practicing medicine. Patient-advocacy familiarizes the student with the full spectrum of health care facilities in the community and allows him to gain experience in communicating with patients through an early exposure to clinical medicine. Small student-faculty ratios (4:1) have been established to maximize the student's personal experience.

Student-Faculty Discussion Groups: Student-faculty discussion groups on community and patient perspectives is another elective for freshmen and sophomores. This program was established to allow students opportunities to explore their specific interests in community medicine through weekly small group (4-8 students, two or more faculty) discussions of important issues and problems in health care delivery and medical education. In general, discussion centers upon the following content areas: 1) medical education, manpower, economics, organization and delivery systems; 2) delivery of health services to the poor; 3) drug abuse, alcoholism, and smoking; 4) medical ethics, and; 5) the principles of community medicine.

Practice-Preceptorship: Junior and senior students may elect to experience "real world" clinical practice through the department's preceptorship program. This elective was designed to allow students with clinical skills to observe, study, and participate in primary family-oriented health care as provided by

practitioners in community hospitals, clinics, or in private physicians' offices. Preceptorships are arranged for a minimum of four weeks. Study outlines and educational objectives are arranged in advance among the students, the departmental faculty leader, and the preceptor. In addition to doing clinical work, each preceptee is required to analyze some phase of the health care system which interests him. This may range from some aspects of the preceptor's practice (i.e. organization of practice, recordkeeping, delivery unit efficiency, utilization of allied health manpower, disease patterns, etc.) to an analysis of a major community health problem. Students are required to work on-site with their preceptors and at the same time maintain close liaison and communication with the faculty leader at the University Medical Center. Methods for measuring student success as well as mechanisms for matching students and preceptors (according to interests, practice setting, personalities, available resources, etc.) have been established to insure optimum learning opportunities for both students and preceptors.

Independent Study: Students at all levels of training may elect to do independent study with the Department. This may entail defining and working on specific problems under the guidance of faculty members; or, it may mean acquiring more knowledge and skill in areas such as epidemiology, biostatistics, ecology, behavioral sciences, and health services research. (See Fig. 1 for an outline of the Department's undergraduate curriculum.)

Grand Rounds: The Department of Community and Family Medicine has begun weekly Grand Rounds on contemporary health care problems. These forums feature speakers from the University and the Intermountain Region. Grand Rounds brings together students, faculty, and practitioners to share ideas, test theories, report current activities, and develop new projects for investigation. Scheduled topics range from "The Uneconomics of Health Manpower" to "Creative Federalism in Health — Birth Pangs."

Distinguished Lecture Series: The Department also sponsors a Distinguished Lecture Series which features presentations by national authorities who are invited to spend brief periods within the Department. Emphasis in this Series is on current issues, major health problems, and future problems with which the Department and the health care system must cope (e.g. Impact of New Types of Health Care Personnel on Health Care, The Government's Role in Delivery of Health Care, etc.).

Residency Training Programs: The Department will offer residency training in both community medicine and family medicine. The community medicine residency is planned as a three-year program to follow internship, and includes a clinical year, an academic year, and a research year. The academic year will provide course material equivalent to that available in Master of Public Health programs offered by schools of public health. The final year will be devoted primarily to independent research on a major community health problem. Throughout the three years, the resident will be actively involved as a teacher in the Department's programs. Special short courses at other institutions will supplement his training at the University of Utah so that the resident's specific individual interests and needs can be met. Completion of the residency in community medicine will provide eligibility for specialty certification in General Preventive Medicine.

The Family Practice Residency Program, which will begin July 1, 1971, has been designed to lead to specialty certification in Family Practice. It is a continuous three-year residency which includes the internship and incorporates the "Essentials for Residency Training in Family Practice" developed by the Council on Medical Education of the American Medical Association. The first operational modules of the program will be located in Ogden, Utah, under the joint sponsorship of the University of Utah Medical Center, the McKay-Dee Hospital, and St. Benedict's Hospital. Rather than rotate through various clinical disciplines, the resident will focus on family practice. From the outset, he will acquire a roster of families for

whom he will provide continuous primary care in a Model Family Practice Unit (MFPU). The MFPU will closely simulate a private office practice and serve as a realistic setting in which the resident can practice continuous comprehensive care with a representative cross-section of patients from the community rather than with a selected group of indigent patients. In this way, he will acquire clinical skills necessary to satisfy minimum standards of competency in each clinical discipline (i.e. medicine, pediatrics, surgery, obstetrics-gynecology, psychiatry, community medicine) as well as gain experiences which meet his individual interests and needs and the type of practice he plans to enter.

Postgraduate Training in Family Practice: The Department provides short refresher courses and special study courses to assist family practitioners in preparing for specialty boards in Family Practice. It also offers opportunities for private practitioners to return to the University Medical Center as learners-in-residence for one to three month periods.

Center for Continuing Health Education: Through collaboration with the Veterans Administration Hospital in Salt Lake City, the Department of Community and Family Medicine is developing a Center for Continuing Health Education (CCHE). The emphasis in planning has been to devise methods and approaches to assess and analyze the needs and tasks of health professionals who work as part of a health services delivery system. Continuing educational programs will develop only after specific needs have been identified and specific objectives established, as will methods for evaluating output in terms of improved patient care. The planning phase for the CCHE is projected for 1970-72 and will be followed by implementation of continuing educational programs for health professionals in the VA Hospitals in the Intermountain Area, as well as for practitioners in other patient care settings.

Allied Health Manpower Training Programs: Development of new types of personnel (such as physician assistants) to assist in delivering health services is emerging as an attractive approach to helping physicians provide more services in geographic areas where the need is greatest. The Department has already begun collaboration with the MEDEX program in the state of Washington, the Utah Medical Society, and the Intermountain Regional Medical Program to begin training Medex to work with practitioners in rural Utah and surrounding states. Depending upon funding, the Department will begin training two groups of twelve independent-duty, ex-military corpsmen. After three months of didactic training at the University Medical Center and twelve months of practical training as a preceptee under the supervision and tutelage of a practitioner-teacher, each will become a certified Medex.

Graduate Programs in Community Medicine: The development of a unique graduate training program in community medicine for non-physicians is already underway. Degrees at both the Master's and Doctoral levels will be offered by the Department. Training is designed to prepare persons for health planning and teaching careers by giving them a background in epidemiology, management, economics, behavioral science, and medical care organization. Dissertation requirements will deal primarily with major community health problems.

Research

An active research program is essential for the development of knowledge and skills relevant to those interested in community medicine. Investigators in epidemiology and biostatistics and a variety of other diverse fields must apply scientific methods to questions relevant to health and the systems for delivering health care. Creating a research environment attractive to investigators in economics, management, sociology, human behavior, political science, and engineering will be essential to the Department's objectives. Research in health care delivery will be undertaken at two levels. The first level can best be described as demonstration research or feasibility studies. Experiments at this level are relatively unstructured and the prime question posed is, "Can it be done?" Research of this type tends to be

pragmatic and often generates useful descriptive information which not infrequently leads to the solution of operational problems. The second level is structured research in which hypotheses are posed, research designs evolved, and measurements made to test the hypotheses. Both kinds of research will be helpful in meeting Departmental objectives.

Plans are currently underway to develop a model for rural health care delivery through which solutions to the Intermountain Region's critical rural health needs can be developed. Health maintenance services for a small defined population will also provide new opportunities for health services research. Moreover, funding is currently pending for the development of an ecology laboratory to study the physiologic effects of a variety of environmental pollutants and to determine methods by which these may be controlled. This project would be jointly administered by the College of Medicine and the College of Engineering.

Service

Operational models in which exemplary patient care can be demonstrated, and "defined populations" (whose health needs can be determined and outcomes measured) are essential for the teaching and research programs. The following operational units for primary personal health care have been instigated by the Department in collaboration with community agencies and organizations as well as with other clinical departments in the College of Medicine: an Ambulatory Care Unit at the University Medical Center, a Neighborhood Health Center in South Salt Lake City, and Rural Health Center in a small remote community. All are scheduled for implementation in the future. In general, patient care provided by departmental faculty will be limited to that required to support established demonstration models; thus the Department's major emphasis and commitment will be to academic pursuits. The Department will not be responsible for administering the clinical health services provided by the University Medical Center but will, along with other clinical departments, share the concern and provide assistance to hospital administration.

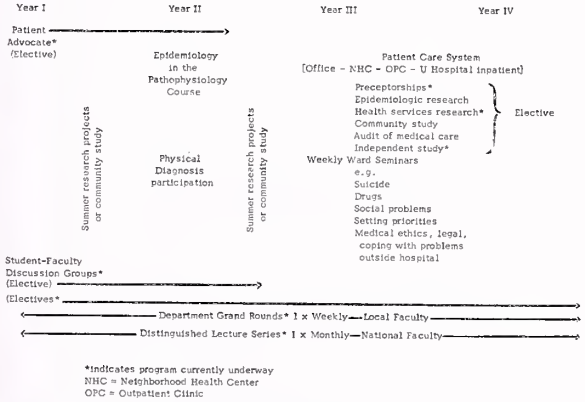


Fig. 1. Proposed Undergraduate Educational Programs in the Department of Community and Family Medicine.

The Department will offer active liaison and consultation to a variety or community agencies such as the Intermountain Regional Medical Program, Comprehensive Health Planning boards, the Community Health Centers Foundation, the State Division of Health, and the Model Cities Program. The Department faculty will also be available for consultation on problems of concern to individual practitioners, community agencies, consumer groups, and medical societies.

Role of the Practicing Physician

As embodied in its name, the Department of Community and Family Medicine is oriented toward the community and the health professionals who work within it. The success of its programs will depend in large measure on the support, concern, and participation by community health practitioners. The response from physicians throughout the Intermountain Region to the formation of the new department has been most encouraging. Through letters over 200 of them have expressed support for the Department's aims, have suggested curricula for students and housestaff, and have offered to work with the Department in a variety of capacities.

It is hoped that a strong clinical teaching faculty can be developed among physicians in the community who are willing to play an intimate role in further developing the new department and contributing to its purposes. The involvement of practitioners as an additional force for improving health care is, of course, essential if significant changes in the quantity and quality of care are to occur.

Collaboration with a large number of practicing health professionals has been successfully initiated by the Intermountain Regional Medical Program. Such cooperation will be supplemented and extended by greater participation of practitioners in the Region in the formulation of objectives for the DCFM and by their participation in teaching and demonstration projects designed to improve the delivery of health services. Preceptorships, for example, obviously will depend upon the active involvement of interested, skilled, and committed local practitioners who want to teach and learn. Their attendance and participation in Departmental Grand Rounds and Distinguished Lecture presentations will help insure that the realities of private practice as well as academic theories from diverse disciplines are considered when health care problems and potential solutions are discussed. Collaboration among all segments of the Region's medical community in research (clinical, epidemiological and administrative) will provide new ideas for study and will insure practical solutions to the many pressing health care problems which face the Region's communities.

Summary

Formation of a new department with new educational and research programs and demonstration projects in the delivery of health care is a manifestation of the changing role and responsibility of the University of Utah for improving health care in the Intermountain Region. The goals and activities of the Department of Community and Family Medicine are summarized to assist the practicing physician in understanding how he may take a more active part in the education of other health professions and the identification and solution of community health problems. •

ACKNOWLEDGMENT

The authors wish to extend their sincere appreciation to William Dickman, B.A., and William M. Wilson, M.A., for their assistance in the preparation of this paper.

REFERENCES

1. Education for Family Practice. Commission on Education of the American Academy of General Practice. September, 1969.
2. Flexner, A. Medical Education in the United States and Canada. A Report to the Carnegie Foundation for the Advancement of Teaching. Bulletin Number Four (1910), p. 26.

PICKER Medical Products

3890 ELM STREET — TEL. 388-5731 — DENVER, COLORADO 80207

Offices also in:
Colorado Springs, Colorado
2236 Glenwood Circle, 635-8768

Salt Lake City, Utah
21 Kensington Street, 487-7519

Albuquerque, New Mexico
113 Sierra Dr., S.E., 255-1288

Medical X-Ray Equipment
Accessories & Film
Nuclear Equipment

A medical potpourri

Compiled by Andrew M. Babey, MD, Las Cruces, New Mexico

7. ". . . a careful study of the use of the red-cell indices for ascertainment of iron deficiency has led to the conclusion that they are hardly more reliable than is examination of the peripheral-blood film by a competent morphologist." FAIRBANKS, Virgil F., Iron Deficiency: Still a Diagnostic Challenge, Medical Clinics of North America, Volume 54-Number 4, July 1970, p. 908.

8. "Some microorganisms are fairly uniformly susceptible to certain drugs; if such organisms are isolated from the patient, they need not be tested for drug susceptibility. For example, pneumococci, group A hemolytic streptococci, and clostridia respond predictably to penicillin. On the other hand, some kinds of microorganisms (eg, coliform gram-negative rods) are sufficiently variable in their response to warrant drug susceptibility testing whenever they are isolated from a significant specimen." JAWETZ, Ernest, Current Diagnosis and Treatment, Brainerd, Krupp, Chatton, Margen; Lange Medical Publication, 1970, p. 760.

9. "We shall have to abandon a style of economy marked by profligate production, consumption and waste for something more like a space-ship economy marked by frugality, recycling and above all by forethought." Quoted from Sir Peter Medawar by Anthony Lewis, The New York Times, Monday, December 14, 1970, p. 43.

10. "The essence of treatment of acute gastroenteritis is replacement of fluid and electrolyte loss combined with drugs which relieve symptoms. Antibiotics are not indicated in the routine case unless there is evidence of systemic invasion or parenteral infection. Nor is there justification for repeated efforts with different antibiotics to clear the symptomless excreter. Pathologists who send out reports with a list of antibiotic sensitivities must accept some responsibility here, for such a list is often taken by the practitioner as therapeutic advice. When reporting persistent excretion, it would be better if laboratories kept the sensitivity results to themselves." Antibiotics in Gastroenteritis, Lancet, December 5, 1970, p. 1169.

11. "Old age makes us wiser and more foolish." Wilfrid Scawen Blunt, Thoughts . . . on the Business of Life, Forbes, January 1, 1971, p. 196.

12. "If the world were merely seductive, that would be easy. If it were merely challenging, that would be no problem. But I arise in the morning torn between a desire to improve (or save) the world and a desire to enjoy (or savor) the world. This makes it hard to plan the day." E. B. White, Thoughts . . . on the Business of Life, Forbes, January 1, 1971, p. 196.

13. "Anything that makes the world more humane and more rational is progress; that's the only measuring stick we can apply to it." Walter Lippman, Thoughts . . . on the Business of Life, Forbes, January 1, 1971, p. 106.

14. "Patient with pneumonia who has had contact with birds. . . . The most fruitful approach to the diagnosis of psittacosis or ornithosis is to ask about contact with any type of bird within two to four weeks of the onset of illness. A positive history of exposure to parakeets, parrots, love birds, canaries or pigeons should dictate a trial of chemotherapy. This is so even if the birds have been healthy, because they may be carrying these agents without exhibiting any manifestations of illness." WEINSTEIN, Louis, Common Sense (Clinical Judgment) in the Diagnosis and Antibiotic Therapy of Etiologically Undefined Infections, Pediatric Clinics of North America, Vol. 15, No. 1, February 1968, p. 143.

15. "Patient with axillary lymphadenitis and encephalitis who owns a cat—think of cat scratch disease." Ibid, p. 143.

16. "Patient with fever, chills, jaundice and leukocytosis who has a dog . . . think of leptospirosis." Ibid, p. 144.

17. "Patient with an ulcer on the thumb, an enlarged axillary lymph node on the same side and fever . . . inquiry into animal contact may immediately focus attention on a specific disease." Ibid, p. 144.

18. "The patient who works with leather, animal hair, wool or elephant ivory and presents with a 'pimple' on any exposed area of the skin should promptly be suspected of having anthrax, especially if the lesion is surrounded by a large area of gelatinous edema." Ibid, pp. 144-145.

19. "A man who works with living or dead cattle who develops a picture suggestive of 'viral pneumonia' should, because of his occupation, be suspected of having Q fever. Unlike the true viral pneumonitides, which are unaffected by exposure to any of the presently available antimicrobial drugs, Q fever responds well to therapy with one of the tetracycline compounds because it is caused by a rickettsia, Coxiella burnetii." Ibid, p. 145.

20. "Veterinarians or others exposed to cats or dogs are prone to develop a number of infections carried by these animals. Thus those who have contact with dogs may get leptospirosis, rabies or pasteurellosis. If they handle cats, they may acquire tularemia, Pasturella multocida infections, rabies, rat bite fever, pneumonia, diphtheria, tuberculosis, brucellosis, typhus, ringworm, creeping eruption or cat scratch disease." Ibid, p. 145.

21. "Persons who have worked for an appreciable period of time in an occupation in which they are exposed to small silica particles must be suspected of having tuberculosis if, superimposed on pulmonary fibrosis, they exhibit fever and a change in the character of the lung findings. The association of silicosis with a marked predisposition to tuberculosis is well established." Ibid, p. 145.

22. "Florists or those whose occupation involves the cultivation or handling of shrubs or trees should be suspected of having sporotrichosis if they develop a papule on an exposed area of skin together with a nodular lymphangitis. The predisposition of these occupations to this disease rests on the fact they often involve exposure to sphagnum or sorghum mosses. These materials are often contaminated by Sporotrichum schenkii, especially if they are obtained from certain areas of the United States." Ibid, p. 145.

23. "Patients with fever, rash and severe headache, in the absence of signs of meningitis, should be suspected of having recrudescent typhus fever (Brill's disease) if they have lived in eastern Europe or County Galway, Ireland. This is true even if they have resided elsewhere for as long as 50 to 60 years before becoming ill, or if rash is absent. This set of circumstances is sufficient to indicate a trial of tetracycline therapy, which will produce cure well before the specific nature of the disease is identified." Ibid, p. 146.

24. "Persons who have not been ill while living in an area of the world where malaria is endemic and who develop an undefinable febrile illness as long as a year or more after they have returned from such a country may be exhibiting this disease for the first time. Such persons usually have vivax infections and have received chloroquine prophylactically while in the malarial environment. There are three common reasons for failure to make this diagnosis. (1) The fact that the patient has lived in a country where malaria is common is not elicited. (2) If this information is available, the time lapse between return to the United States and onset of illness is considered too long. (3) The fever curve is not typical early, but is often featured by a daily spike for as long as a week before the characteristic tertian pattern develops." Ibid, p. 146.

25. "A diffuse pulmonary disease characterized by fever and no other findings frequently presents a difficult diagnostic problem until inquiry is made regarding geographic areas in which a patient has lived or traveled. If he has been in locales where coccidioidomycosis or histoplasmosis is common, the possibility of one of these disorders must be given serious consideration." Ibid, p. 146.

PUBLICATION PRINTING...

NEWSPAPERS • MAGAZINES
ANNUALS • QUARTERLIES
BOOKLETS • BROCHURES
REPORTS • ROSTERS • PROGRAMS
HANDBOOKS • CATALOGUES

•

EDITORIAL ASSISTANCE • BINDING
ART DEPARTMENT • MAILING

Publishers Press, Inc. / Monitor Publications

2177 W. 7th DENVER 892-0166

CAMPBELL'S SOUPS IN DIABETIC DIETS*

RECOMMENDATIONS FOR PLACING CAMPBELL'S SOUPS* INTO EXCHANGE LISTS

* These recommendations are based on a *one cup portion* when prepared according to directions on the label. If milk is used in the preparation, use part of your daily requirement.

Exchange Substitution for 1 Bread and ½ Fat	Exchange Substitution for 1 Meat and 1½ Bread
Tomato	Hot Dog Bean
Tomato, Bisque of	Split Pea with Ham
Tomato Rice, Old Fashioned	
Exchange Substitution for ½ Bread and ½ Fat	**Exchange Substitution for ¼ Meat and ½ Bread**
Asparagus, Cream of	Chicken Gumbo
	Chicken Noodle

Campbell's Soups are appetizing and enjoyable and, because of the many varieties available, offer your diabetic patients the opportunity to plan and enjoy more interesting and appealing meals.

*To obtain copies of "Recommendations for Placing Campbell's Soups Into Exchange Lists," suitable for distribution to patients, write to Campbell Soup Company, Dept. 300, Campbell Place, Camden, N.J. 08101.

There's a soup for almost every patient and diet ...for every meal and, it's made by Campbell

IF MORE MEN CRIED

At least seventy-five out of one hundred adults with duodenal ulcers are men.[1] Why? It may be significant that duodenal ulcer patients tend to crave recognition and are "especially vulnerable to threats to their manly assertive independence."[2]

Hypersecretion—an atavistic response. Stewart Wolf, who, with Harold G. Wolff, studied the personalities of duodenal ulcer patients, wonders if masculine competitiveness is related to "an atavistic urge to devour an adversary." It is striking, he reports, that an accentuation of gastric acid secretion and motility can be "induced in ulcer patients by discussions that arouse feelings of inadequacy, frustration and resentment."[2]

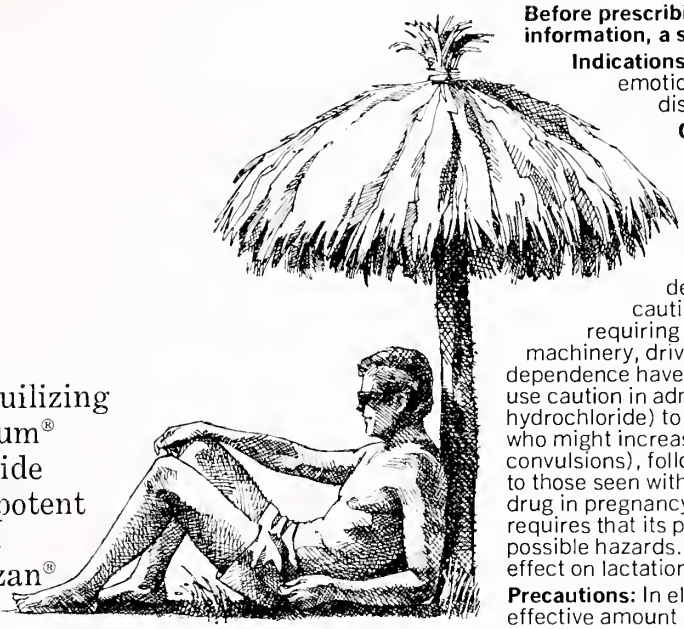
By chance? A lean, hungry lot. Was the link between emotions and gastric hyperacidity acquired through mutation to serve a purpose? During man's jungle period of evolution, the investigator points out, a male dealt with a foe by killing and devouring it. "It may be more than coincidence," he concludes, that peptic ulcer patients appear to be "a lean, hungry, competitive lot."[3]

Big boys don't cry. If more men cried, maybe fewer would wind up with duodenal ulcers. But men will be men—the sum total of their genes and what they are taught. Schottstaedt observes that when a mother admonishes her son who has hurt himself that big boys don't cry, she is teaching him stoicism.[4] Crying is the negation of everything society thinks of as manly. A boy starts defending his manhood at an early age.

Take away stress, you can take away symptoms. There is no question that stress plays a role in the etiology of duodenal ulcer. Alvarez[5] observes that many a man with an ulcer loses his symptoms the day he shuts up the office and starts out on a vacation. The problem is, the type of man likely to have an ulcer is the type least likely to take long vacations or take it easy at work.

The rest cure vs. the two-way action of Librax.® For most patients, the rest cure is as unrealistic as it is desirable. Still, the stress factor must be dealt with. And here is where the dual action of adjunctive Librax can help. Librax is the only drug that com-

References: 1. Silen, W.: "Peptic Ulcer," in Wintrobe, M. M., *et al.* (eds.): *Harrison's Principles of Internal Medicine*, ed. 6, New York, McGraw-Hill Book Company, 1970, p. 1444. 2. Wolf, S., and Goodell, H. (eds.): *Harold G. Wolff's Stress and Disease*, ed. 2, Springfield, Ill., Charles C Thomas, 1968, pp. 68-69. 3. *Ibid.*, p. 257. 4. Schottstaedt, W. W.: *Psychophysiologic Approach in Medical Practice*, Chicago, Ill., The Year Book Publishers, Inc., 1960, p. 163. 5. Alvarez, W. C.: *The Neuroses*, Philadelphia, Pa., W. B. Saunders Company, 1951, p. 384.



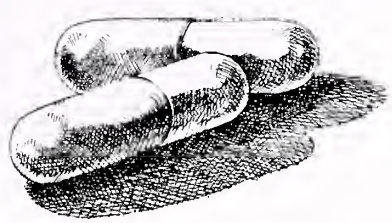
bines the tranquilizing action of Librium® (chlordiazepoxide HCl) with the potent anticholinergic action of Quarzan® (clidinium Br).

Protects man from his own hungry personality. The action of Librium reduces anxiety—helps protect the vulnerable patient from the psychological overreaction to stress that clutches his stomach. At the same time, the action of Quarzan helps quiet the hyperactive gut, decreasing hypermotility and hypersecretion.

An inner healing environment with 1 or 2 capsules, 3 or 4 times daily. Of course, there's more to the treatment of duodenal ulcer than a prescription for Librax. The patient—with your guidance—will have to adjust to a different pattern of living if treatment is to succeed. During this adjustment period, 1 or 2 capsules of Librax 3 or 4 times daily can help establish a desirable environment for healing.

Librax: It can't change man's nature. But it can usually make it easier for men to cope with the discomfort of stress—both psychic and gastric—that can precipitate and exacerbate duodenal ulcer.

Librax: Rx #60 1 cap. *a.c.* and 2 *h.s.*



Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

in the treatment of duodenal ulcer

• adjunctive Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc
Nutley, N.J. 07110

COLORADO

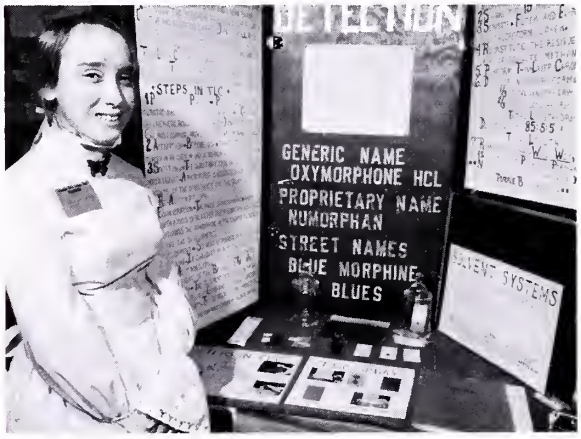
Colorado State Science Fair

The 16th Annual Colorado State Science Fair was held in Boulder on April 16-17, 1971. The Fair entries this year showed a marked improvement. There was a total of 148 exhibits, Junior and Senior high school entries.

Again the Colorado Medical Society provided the administrative leadership for this annual event that helps us to show our faith in the young, scientific-minded students, who are working eagerly to help solve the problems of our times, and who are "demonstrating" their good faith. Dr. Calvin Fisher, Fair Director, devotes much time and thought to the forward advancement of the Fair. Mrs. Eileen Irwin and Mrs. Judy Van Zante of the Medical Society executive office staff, help to implement the yearly staging of the Fair, with the assistance of our printing department.

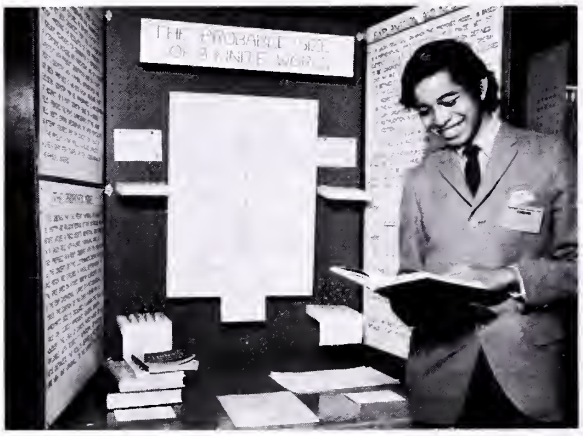
Dr. Fisher accompanied the two overall winners to the International Science and Engineering Fair in Kansas City, Missouri, May 10-15. He reports that the Council of the ISEF has selected Denver for the site of its 1977 International Fair.

Miss Robin Anne Zorno, a Senior at Thomas Jefferson High School in Denver, was first place, best of show, overall winner with her exhibit, "Narcotics Detection." It is interesting to know that some of the methods that she has developed are being used in the Denver area. Miss Zorno also won 1st place award for Senior High Physical Sciences division; 1st place award given by Colorado State Society for Medical Technologists; 2nd place award presented by the Society of Women Engineers; U.S. Air Force award for excellence in Chemistry, and the Sigma Xi Grand Award presentation.

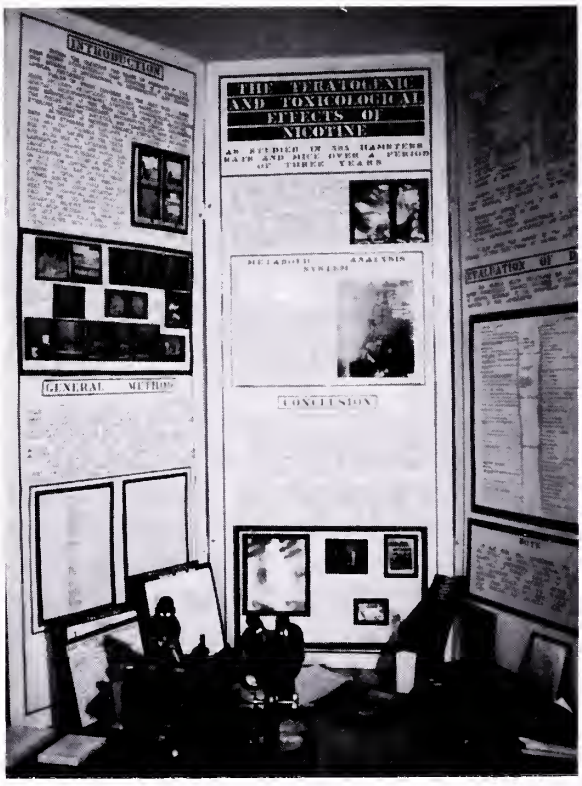


Robin Anne Zorno with her exhibit, "Narcotics Detection."

Mr. Arvind Srivastava, a 10th grade student at Poudre High in Fort Collins, was 2nd place overall winner. His exhibit, "Finite Geometrical Model for the Universe," also earned him the U.S. Navy Science Cruiser Award. Arvind's entry was in the Mathematical Division of exhibits, and is one of the very few mathematical entries from Colorado to ever win a trip to the International Fair. Mr. Srivastava's exhibit also won 1st place in Senior High Mathematics Division; the U.S. Air Force Award for excellence in Mathematical Sciences, and the Sigma Xi Award for Mathematics.



Arvind Srivastava with his exhibit, "Finite Geometrical Model for the Universe."



Steve Hatcher's exhibit, "The Teratogenic and Toxicological Effects of Nicotine."

The Colorado State Science Fair pays all expenses of the above two winners to the International Science and Engineering Fair.

The Colorado Medical Society Award was won by Steve Hatcher, Senior, Wasson High School, Colorado Springs. Steve's exhibit, "The Toxicological and Teratogenic Properties of Nicotine," also won the 1st place American Cancer Society Award, first place award from Colorado Dental Association, and 3rd place award for Senior High Biology Division. As part of his award, Steve has been invited by the Colorado Medical Society to display his exhibit at the Annual Session in September. You will all have a chance then to see an example of the quality of exhibits shown at the Science Fair, and perhaps sense the time-consuming responsibility of the judges to study the many excellent displays before selection of the winners.

The 1972 Colorado State Science Fair will be held in Boulder on April 14 and 15.

MONTANA

Postgraduate Preceptorships

The Washington/Alaska Regional Medical Program, through its association with the University of Washington and the Washington State Medical Association, has just announced that their individualized preceptorship training programs for Montana physicians will continue during the coming year. Like many other federal health programs, however, the project received a funding cut-back in 1971 and its sponsors may not be able to accommodate the growing demand for participation. As a result, it will be necessary to establish a chronological priority for applicants. Montana physicians considering undertaking such a preceptorship this year should contact Miss Joan Kelday, Postgraduate Preceptorships Project, Washington/Alaska Regional Medical Program, 530 University District Building, Seattle, Washington 98105.

* * * * *

Alfred M. Fulton, MD, Billings, a past president of this Association, has been named one of twelve new members of the Board of Directors of the United States Chamber of Commerce, for a term of two years. Doctor Fulton is engaged in the practice of internal medicine in association with the Billings Clinic. He has been active not only in the affairs of the Montana Medical Association but has also served as governor of the Montana-Wyoming Region of the American College of Physicians.

MEDICAL SCHOOL NOTES

University of Colorado Medical Center

The heads of two divisions in the University of Colorado School of Medicine have been elected to membership in the American Society for Clinical Investigation, national organization of medical scientists engaged in clinical research.

Chosen for the honor were Dr. Karl Sussman and Dr. Theodore Eickhoff, both associate professors at the CU Medical Center. Dr. Sussman is head of the Division of Endocrinology, and Dr. Eickhoff heads the Division of Infectious Diseases.

* * * * *

Denison Memorial Library at the University of Colorado Medical Center in Denver is one of eight medical libraries in a seven-state area participating in the Midcontinental Regional Medical Library Program to provide health science information to regional health professionals. The regional program was established under a grant from the National Library of Medicine of the National Institutes of Health, Bethesda, Md., as part of a nation-wide Biomedical Communications Network.

Designed to facilitate borrowing between libraries for better access to biomedical literature, the program includes the medical collections of the Universities of Colorado, Kansas, Missouri, Nebraska and Utah; Colorado State, Creighton and Washington (St. Louis) Universities, and other medical and scientific libraries in the seven states. Also included in the regional service is the University of Wyoming library.

Medical library services are becoming increasingly important to health professionals because of the great increase in medical knowledge in recent years and the vast amount of new medical literature available. In addition to assisting with medical education, library collections serve as valuable aids to diagnosis and treatment of disease.

Robert M. Braude, associate librarian at the CU Medical Center, said the 102,000-volume Denison Library is responsible for carrying out the regional library program in Colorado.

"The program is designed to supplement, not replace, existing hospital libraries throughout the state," Mr. Braude said. "Individual requestors should always contact their local libraries first when searching for material.

"One of the principal services is the provision of inter-library loans." We will attempt to fill, from our collections, requests from Colorado libraries which cannot be filled locally. Those requests which we cannot fill will be referred to other libraries in the regional system."

Libraries responding to requests may send either original material or photocopies.

The CU medical library also provides MEDLARS (Medical Literature Analysis and Retrieval System) services, a computer-produced bibliography search tailored to meet the information needs of an individual requestor, without cost.

Medical librarians interested in the regional library service may contact Mr. Braude at Denison Library, CU Medical Center, 4200 E. Ninth Ave., Denver 80220.

University of Nevada School of Medical Sciences

There has been "extensive cooperation" between library agencies in Nevada this past year towards implementing continued education for health professionals, a regional library official said in Reno recently. Nelson J. Gilman of Los Angeles, associate director of Pacific Southwest Regional Medical Library Service, spoke to University of Nevada, Reno, faculty and Nevada State Library members.

He cited the large increase in inter-library loans of books and in furnishing photo-copied articles from biomedical journals for the use of health professionals. Gilman said this was accomplished directly by communication among the libraries within the state. In addition, he said, there was a three-fold increase last year in requests to the regional service for material not available in Nevada libraries, which were expedited by teletypewriter and which were filled in an average of one and one-half days.

Access to the regional network of medical and related collections is provided through the Life and Health Sciences Library at the University of Nevada, Reno. This facility is being expanded under the auspices of the School of Medical Sciences and College of Agriculture.

Another benefit of the system Gilman said, is the economy resulting from cooperative arrangements among the Nevada libraries to complement their holdings and to forego subscribing to biomedical journals already held in other libraries of the state.

* * * * *

A programed problem-solving text in neuroanatomy, written by a University of Nevada, Reno, professor has been published.

Dr. Richard H. Licata is the author of "Symptoms, Lesions, Syndromes of the Head and Neck," published by Commonwealth Monographs of San Francisco. Dr. Licata is director of curriculum and medical research of the UNR School of Medical Sciences. He said the book is a text designed to help medical students learn neuroanatomy of the head and neck. A second volume dealing with neuroanatomy of the trunk and extremities, is due to be published this fall.

The material in this book is presented in a series of problem-solving situations represented by case histories. The student is given the symptoms. Then, from his knowledge of the nervous system and its possible disorders he is expected to arrive at diagnosis. The book is designed to be used by students who have taken a prior course in neuroanatomy or are simultaneously studying neuroanatomy.

The text attempts to help the student develop recall of neuroanatomical facts and hopes to further the development of competent and responsible clinical judgment during their undergraduate training. It has been called an "early introduction" to clinical experience which is designed to be used as a tool in conjunction with clinical work. It is also "self teaching."

Dr. Licata is professor of anatomy at the School of Medical Sciences and consultant in neuroanatomy at Washoe Medical Center. He is also a consultant on medical curriculum at the National Institute of Health, and the vice chairman of the Nevada Advisory Committee of the Western Interstates Commission on Higher Education and Medical Regional Programs.

University of New Mexico School of Medicine

Several hundred New Mexicans suffer from leukemia and lymphoma—the cancers of blood and blood forming organs. A few years ago such patients faced rapid and certain death — but through recent developments, these patients' lives have been greatly extended and cures are seen in some patients.

These important new treatment methods are being brought to New Mexicans through the efforts of a group of physicians which obtained sponsorship one year ago from the New Mexico Regional Medical Program. The doctors have assembled to coordinate their efforts in a team approach, for a unified attack on leukemia and lymphoma problems in New Mexico. The program involves doctors and hospitals throughout the state, said Dr. John H. Saiki, assistant professor of medicine at University of New Mexico School of Medicine. Dr. Saiki is one of the coordinators of the Leukemia-Lymphoma Program, along with Dr. Ernest R. Simon, UNM professor of medicine, and Dr. William R. Hardy, UNM associate professor of medicine and pathology.

Most of the money comes from the New Mexico Regional Medical Program, plus local and federal sources. Because of serious cutbacks in federal funds which threaten the survival of the program, a group of New Mexicans who have been helped by the program have incorporated the New Mexico Leukemia-Lymphoma Society. The Society needs to raise $30,000 per year for the next three years to enable the program to function until long-range financing can be provided, Dr. Simon said.

Currently the Leukemia-Lymphoma Program is actively working with about 100 patients at hospitals throughout Albuquerque, with a number of patients being referred from such communities as Farmington, Gallup, Alamogordo, Las Cruces, Carlsbad, Hobbs, Roswell, Santa Rosa, Las Vegas and Tucumcari.

The Program is a member of the Southwest Cancer Chemotherapy Study Group, headed by Dr. Emil Frei III, of M. D. Anderson Hospital and Tumor Institute in Houston. The group includes 19 major centers throughout the U. S. and Canada. Skilled chemotherapists from the Study Group have designed detailed treatment standards which are used by the New Mexico Program to insure the most effective therapy.

All proven drugs are available to physicians participating in the program. For patients who are unresponsive to these drugs, the National Cancer Institute makes available to the Program the entire range of experimental drugs, recognizing the Program's outstanding quality.

Five cobalt radiotherapy facilities now exist in New Mexico. One is in Carlsbad, one in Hobbs, and three are in Albuquerque. In about four years, the meson facility, now nearing completion at Los Alamos, will provide a new source of radiotherapy, potentially far more effective for certain cancers than any other source in the world. The National Cancer Institute has approved the establishment of a Cancer Research and Treatment Center at UNM School of Medicine which will include a comprehensive radiotherapy program.

* * * * *

More than $3.6 million has been awarded to the University of New Mexico School of Medicine by the federal government, to enable UNM to increase its entering class of future doctors by 50 per cent within four years. First year funds in the Physicians Augmentation Program (PAP), totaling $468,191, have been made available immediately in order to get the program started. Large alterations and renovations hopefully will be ready for next fall's entering class.

The grant was awarded on a national competitive basis to 27 schools of medicine and osteopathy. PAP is authorized under provision of the Health Manpower Act of 1968, and the grants are administered jointly by the Division of Physician Manpower and the Division of Health Manpower Educational Services, components of the National Institutes of Health.

The UNM School of Medicine will be able to enlarge its entering class from 48 to 72 students over the next four years. Plans are to admit eight more students this fall, eight more the following year, and four new additional students each of the final two years of the grant.

The amounts reflected on the award for future years are tentative and subject to enabling federal legislation, the availability of funds and negotiation of detailed budget justifications, medical school officials said. The main idea behind the PAP program is to encourage existing medical schools to accept more students, rather than building more new medical schools.

The UNM School of Medicine, now in its seventh year of teaching, has a curriculum which differs from traditional medical education. Instead of individual classes in anatomy, biochemistry, etc. the students have interdisciplinary classes which combine all disciplines and eliminate duplication of material. UNM medical students also begin seeing patients during their first week at medical school rather than during the traditional third year of study, learning to "treat the whole patient, not just his disease."

The medical school recently was selected as the site of a Cancer Research and Treatment Center, which will make use of the $56-million Los Alamos Meson Physics Facility.

University of Utah Medical Center

A 190 pound calf at the University of Utah Medical Center has set a new 174-hour record for survival with an artificial heart. The heart was implanted in "Latina," a holstein calf, by a team of surgeons and technicians under the leadership of Dr. Willem Kolff, Director of the University's Division of Artificial Organs. The previous world record of 102 hours, set in February of this year by the University team was broken when the present calf lived past 9:00 p.m. on April 14, 1971. Latina (a corruption of the Cherokee Indian word meaning "Long Life") died at 6:30 p.m. on Friday, April 16, 1971 of pulmonary complications. The artificial heart was still performing flawlessly.

The heart, designed at the University of Utah by Doctors Clifford Kwan-Gett and Hans Zwart, was implanted in a five-hour operation, using the heart-lung bypass method. The heart consists of two spherical, diaphragm design pumping chambers made of Silastic rubber reinforced with dacron mesh. In an attempt to prevent the natural tendency for blood to clot when in contact with a foreign surface, the insides of the heart chambers were coated with dacron fibrils which were "seeded" with fibroblast cells by Dr. Douglas Hill, Professor of Microbiology at the University of Utah. These fibroblast cells can form a compatible layer of living tissue which reduces the incidence of blood clotting. This coating technic was first used by Drs. C. J. LaFarge and W. F. Bernhard of Children's Hospital, Boston, Massachusetts, for use in other heart assist devices. The University of Utah team is believed to be the first to use this technic in total artificial heart replacement.

According to Dr. Hans Zwart, chief investigator in the experiment, the fact that the calf survived 174 hours with no evidence of embolization (clots formed on the heart's inner surface, which are washed into the blood stream) is an encouraging step in the development of the artificial heart.

One of the unanswered questions concerning the artificial heart has been the long term effect of such a device on the living circulatory system. Now, with the reality of extended survival, this evidence may be collected and evaluated. The success of the present experiment may also accelerate the development of an implantable power system, presently under study by several other research institutions.

OBITUARIES

Colorado

James Grafton Rogers, 88, a long-time honorary member of the Colorado Medical Society, died April 23 following a heart attack.

Born in Denver, January 13, 1883, Rogers was the son of Dr. and Mrs. Edmund J. A. Rogers. He was educated in the Denver public schools and attended St. Paul's School, Concord, N.H. 1899-1901. He received his bachelor of arts degree from Yale University in 1905 and honorary masters degree from Yale in 1931. He received his law degree from the University of Denver in 1908.

As an educator, Rogers was a professor at the DU Law School, 1910-1927; dean, DU Law School, 1927; dean, University of Colorado Law School, 1928-35; professor of law, Yale University, 1935-42; master of Timothy Dwight College, Yale University, 1935-42; trustee of St. Paul's School, 1941-45, and trustee of Connecticut College, 1939-43.

His law career began when he was admitted to the Colorado Bar in 1908. He was a Colorado assistant attorney general, 1909-10, and was in private practice from 1910-1928.

He was married to Cora May Peabody, daughter of Colorado Governor James H. Peabody, in 1910. She died in 1969. He was commissioned a first lieutenant during World War I and served as an artillery instructor in the United States. Later he was to serve as a trustee of the World Peace Foundation, 1937-1953.

Rogers was mayor of Georgetown, Colorado from 1953 to 1955 and again from 1957 to 1959. Although he referred to himself as technically Georgetown's "police judge," he was concerned with the preservation of its historic aspects and was instrumental in the establishment of the area as a national historic landmark.

He was founder and first president (1913-17) of the Colorado Mountain Club and was instrumental in establishing Rocky Mountain National Park. In addition to the Mountain Club, Rogers was a member of the City Club and its president in 1920; the University Club of which he was president, 1922-24; the Cactus Club, of which he was president, 1920-21; the American Alpine Club of which he was president, 1938-41; the Yale Club of New York City; the Colorado Author's League, Denver Law Club, Denver Club, Mile High Club, Denver Press Club, and Wigwam Club.

Surviving are two sons, Ranger of Littleton, who is a former Republican majority leader in the Colorao Senate and Hamilton of Albuquerque, New Mexico; a daughter, Mrs. Stephen H. Hart of Denver; 12 grandchildren and two great-grandchildren.

* * * * *

Joseph E. A. Connell, MD, 75, of Pueblo, who retired from practice as a surgeon in 1965, died unexpectedly April 9 in Kyoto, Japan. He and his wife had left their home on April 1 for a six-week tour of the world.

After visiting a son, Joseph, in San Francisco, they began their tour which was to include Tokyo, Hong Kong, Bangkok, Tel Aviv, Dublin and other cities.

Doctor Connell was a native of Philadelphia and was graduated in 1927 from Colorado University School of Medicine. He practiced surgery and was a member of the medical school faculty before beginning his practice in Pueblo in 1943. He was a diplomate and certified member of the American Board of Surgeons, a fellow of the International College of Surgeons, and a member of the American Medical Association, the Colorado Medical Society and the Pueblo County Medical Society.

He was a past president of the Corwin Clinic Association and a past chief of staff of the St. Mary-Corwin Hospital surgery department.

In addition to his widow, Doctor Connell is survived by three sons, Joseph of San Francisco, James R. of Washington, D.C., and Charles J. of South Bend, Indiana; and a daughter, Mrs. Catherine L. Koch, residing in Minnesota.

Montana

Walter George Ludwig Tanglin, MD, Polson, Montana, died in Polson on January 26, 1971. Doctor Tanglin was born on July 29, 1898, in Forest Lake, Minnesota. He received his M.D. degree in 1932 from the University of Minnesota Medical School. He engaged in the general practice of medicine at Mahnoman, Minnesota, until May, 1940, when he moved to Polson to continue general practice. Doctor Tanglin was active in the affairs of his community and of the Montana Medical Association. He served as a member of several of the committees of this Association and was particularly active as a member and as chairman of the Committee on Rural Health. He also served as president of the Montana Public Health Association, the Montana Health Planning Council, and the Flathead Medical Society.

* * * * *

Clement Clifford Seerley, MD, Bozeman, Montana, died on February 25, 1971. Doctor Seerley was born on July 17, 1880, in Oskaloosa, Iowa. He received his B.S. degree from the University of Iowa in 1904 and his M.D. degree from Northwestern University Medical School in 1908. Following graduation, Doctor Seerley practiced in Mandan, North Dakota, and in 1910, moved to Three Forks and to Manhattan. In 1919 he moved to Bozeman to continue his general practice of medicine. Doctor Seerley was interested in athletics and other community affairs in Bozeman. In 1958 he became a member of the Fifty Year Club of the Montana Medical Association.

* * * * *

Arch Walls, MD, Kalispell, Montana, died at his home west of Kalispell on April 10, 1971. Doctor Walls was born in Pontiac, Michigan, on February 2, 1895. He received his A.B. degree from the University of Michigan in 1918 and his M.D. degree from the University of Michigan Medical School in 1923. He was engaged in the general practice of medicine in the Detroit area for nearly forty years before moving to Kalispell in 1964. Doctor Walls was a past president of the Michigan State Medical Society and was one of the founders of the American Academy of General Practice in 1947, serving as chairman of its Board of Directors while located in Michigan.

Utah

Louis J. Taufer, MD, Salt Lake City physician and surgeon died April 29, 1971. He was 71 years of age. Born March 5, 1900, in Salt Lake City, he was the son of Louis John and Ellen Conder Taufer. He married Marion Jones on June 28, 1935, in Salt Lake City.

Doctor Taufer graduated from the University of Utah, and later received B.A. and M.D. degrees from Columbia University. He interned at New York City Hospital for two years, and then completed a surgical residency in a New York private hospital.

Returning to Salt Lake City, Doctor Taufer commenced his private practice of surgery. He also served as chief surgeon for the Union Pacific Railroad Employees Hospital Association, and was a member of the Western Railway Association.

He was a fellow of the American College of Surgeons and the International College of Surgeons and was also affiliated with the Salt Lake Surgical Society. He was a member of the Salt Lake County, Utah State, and American Medical Associations. Doctor Taufer was a member of the L.D.S. Church and served on the surgical staff of L.D.S. Hospital.

Surviving him are his widow; two sons and one daughter, Louis J., Jr.,; John L.; Tanya K.; and one sister, Mrs. Grace Hansen all of Salt Lake City.

* * * * *

Paul C. Ronniger, MD, Salt Lake City obstetrician and gynecologist, died May 5, 1971. He was 55. The son of Otto P. and Anna Goetz Ronniger, Doctor Ronniger was born February 5, 1916, in San Francisco. He married Leona Berthot on May 16, 1942, in Rochester, New York.

Graduating from Stanford University in 1940 with an A.B. degree, Doctor Ronniger received his doctor of medicine in 1942 from the University of Rochester School of Medicine. He interned at the New York Hospital, and served residencies in obstetrics and gynecology with the U.S. Navy, and later at the L.D.S. Hospital and Salt Lake County General Hospital in Salt Lake City.

Doctor Ronniger was a member of the Salt Lake County, Utah State, and American Medical Associations. He was also affiliated with the Utah Obstetrics and Gynecology Society, and the American Academy of General Practice. He served on the medical staffs of the L.D.S. and Cottonwood Hospitals.

Survivors include the doctor's widow; four sons, Paul Michael, David, Phillip and Stephen; one daughter, Merrily, all of Salt Lake City; three grandchildren; and one brother, Otto, of San Francisco.

* * * * *

Demoivre R. Skidmore, MD, 65, prominent Salt Lake City obstetrician and gynecologist, died April 13, 1971.

Doctor Skidmore was born March 1, 1906, in Logan, Utah. He married Marion Burnadette Burke on August 24, 1935, in the Salt Lake L.D.S. Temple.

Doctor Skidmore attended the University of Utah from 1927 to 1931, receiving his A.B. degree and a two-year certificate in medicine. At that time he was affiliated with the Sigma Chapter of Phi Beta Pi. He received his Doctor of Medicine in 1933 from the University of Pennsylvania School of Medicine. He interned at the Staten Island Hospital, New York, from 1933 to 1935 and returned to Utah, where he commenced his private practice in Salt Lake City. He also assisted the University of Utah in the Student Health Service, and as a lecturer at the Medical School in obstetrics and gynecology.

A member of the L.D.S. Hospital medical staff, Doctor Skidmore served, from 1951-52, as chairman of the obstetrical and gynecological division, and as staff president in 1958. Affiliated with the American College of Surgeons and the American College of Obstetricians and Gynecologists, Doctor Skidmore was also a member of the Utah Obstetrics and Gynecology Society. He was active in the Salt Lake County, Utah State, and American Medical Associations.

Doctor Skidmore was an active member of the L.D.S. Church and had fulfilled a mission to Germany and Austraia. At the time of his death he belonged to the Ensign Stake, and had served as a member of the Stake Sunday School Board and the Sunday School Superintendency.

Surviving the doctor are his widow; four sons, Ray Burke, David Roger, Thomas Charles and William Lobark and one daughter, Mrs. Lloyd (Marianne) Perkins, all of Salt Lake City; nine grandchildren; two brothers, Dr. Rex A. of Salt Lake City and Dr. C. Jay of Logan; and two sisters, Mrs. Eldon T. (Zella) McEntire and Mrs. Lyman W. (Mary) Condie, both of Salt Lake City.

25th Annual

Rocky Mountain Cancer Conference

Brown Palace Hotel — July 16-17, 1971 — Denver, Colorado

Co-sponsored by the American Cancer Society, Colorado Division and the Colorado Medical Society

NO REGISTRATION FEE

Approved for AAGP Credit

Friday, July 16

8:00 a.m.—REGISTRATION

9:00 a.m.—WELCOME

KENNETH C. SAWYER, M.D.
Chairman, Committee on Cancer, Colorado Medical Society

MARVIN E. JOHNSON, M.D.
President, Colorado Medical Society

WESLEY W. HALL, M.D.
President-elect, American Medical Association

J. ROBERT SPENCER, M.D.
President-elect, Colorado Division, American Cancer Society

A. HAMBLIN LETTON, M.D.
President-elect, American Cancer Society

9:30 a.m.—SYMPOSIUM: **Cancers of the Head and Neck**

Moderator: WILLIAM R. NELSON, M.D.

Participants: RICHARD H. JESSE, M.D.; ROBERT D. LINDBERG, M.D.; ROBERT W. MCDIVITT, M.D.; R. WAYNE RUNDLES, M.D.

12:15 p.m.—LUNCHEON

Presiding: MARVIN E. JOHNSON, M.D.

Guest Speaker: WESLEY W. HALL, M.D.

2:00 p.m.—PRESENTATION OF SCIENTIFIC PAPERS

Presiding: RICHARD M. GRANBERG, M.D.

WILLIAM W. HAGGART, M.D., MEMORIAL LECTURE

Practical Considerations in the Management of Carcinoma of the Breast
O. T. CLAGETT, M.D.

2:25 p.m.—**Oral Cavity Cancer—The Selection of the Proper Treatment Modality in Relationship to the Expected Cure Rates**
RICHARD H. JESSE, M.D.
ROBERT D. LINDBERG, M.D.

2:50 p.m.—**Long Range Review of Thyroid Tumors**
ROBERT W. MCDIVITT, M.D.

3:30 p.m.—**Malignant Lymphomas and Lympho Proliferative Diseases**
R. WAYNE RUNDLES, M.D.

3:55 p.m.—**Selection of Treatment of the Node in the Neck—Treatment Technique and End Results**
RICHARD H. JESSE, M.D.
ROBERT D. LINDBERG, M.D.

4:20 p.m.—ADJOURN

Saturday, July 17

8:30 a.m.—REGISTRATION

9:00 a.m.—Presiding: KENNETH C. SAWYER, M.D.

9:15 a.m.—SYMPOSIUM: **What's New in Chemotherapy**

Moderator: ROGER S. WOTKYNS, M.D.

Participants: RICHARD H. JESSE, M.D.; ROBERT D. LINDBERG, M.D.; ROBERT W. MCDIVITT, M.D.; R. WAYNE RUNDLES, M.D.

12:15 p.m.—LUNCHEON

Presiding:
GEORGE H. CURFMAN, JR., M.D.
President, Denver Medical Society

The American Cancer Society Tomorrow

Guest Speaker:
A. HAMBLIN LETTON, M.D.

2:00 p.m.—INFORMATION, PLEASE

Moderator: ALEXIS E. LUBCHENCO, M.D.

Participants: RICHARD H. JESSE, M.D.; ROBERT D. LINDBERG, MD.; ROBERT W. MCDIVITT, M.D.; R. WAYNE RUNDLES, M.D.

4:00 p.m.—ADJOURN

Conference Speakers

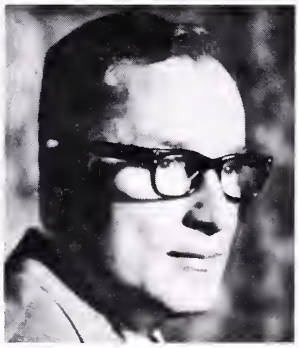
Wesley W. Hall, M.D.
President-elect
American Medical Assn.

A. Hamblin Letton, M.D.
President-elect
American Cancer Society

O. T. Clagett, M.D.
Consultant, Dept.
Thoracic Surgery
Mayo Clinic
Rochester, Minnesota

Robert D. Lindberg, M.D.
Dept. Radiation Therapy
M. D. Anderson Hospital
Houston, Texas

Robert W. McDivitt, M.D.
Chairman, Dept. Surgical Pathology
The New York Hospital
New York, New York



Richard H. Jesse, M.D.
Chief, Dept. Head and Neck Surgery
M. D. Anderson Hospital
Houston, Texas

R. Wayne Rundles, M.D.
Professor, School of Medicine
Duke University
Durham, North Carolina

MEETINGS

University of Colorado School of Medicine Postgraduate Medical Education

GENERAL PRACTICE REVIEW
YMCA Conference Center, Estes Park, Colorado
June 21-26, 1971

OPHTHALMOLOGY
Colorado Springs, Colorado
July 5-8, 1971

PEDIATRICS
Aspen, Colorado
July 11-14, 1971

INTERNAL MEDICINE
YMCA Conference Center, Estes Park, Colorado
July 20-24, 1971

DERMATOLOGY
Aspen, Colorado
July 22-24, 1971

RECENT ADVANCES IN RHEUMATIC DISEASES
Estes Park, Colorado
July 26-29, 1971

The above dates are subject to change. Detailed programs, which will be available six to eight weeks before course date, may be obtained from The Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado 80220.

American Gastroenterological Association

CHRONIC INFLAMMATORY DISEASE OF THE GUT
Aspen, Colorado
July 29-31, 1971
Credit: AAGP—12 hours

For information write to Mrs. Bernie C. Kern, 740 Krameria Street, Denver, Colorado 80220.

American Academy of General Practice

14th ANNUAL RUIDOSO SUMMER CLINIC
Chaparral Motel, Ruidoso, New Mexico
July 19-22, 1971

Contact Mr. Bob Reid, Executive Secretary, P.O. Box 456, Sunland Park, New Mexico 88063 for further information concerning this meeting.

Children's Hospital—Denver

CDC SYMPOSIUM ON NUTRITION
October 22, 1971

Speakers will include Joanne Brasel, M.D., Cornell; Stanley Dudrick, University of Pennsylvania; H. Peter Chase, University of Colorado, and Jack Metcoff, M.D., University of Oklahoma.

No fee. Registration limited. Write L. Joseph Butterfield, M.D., 1056 East 19th Avenue, Denver, Colorado 80218.

Montana Medical Association 93rd Annual Meeting

Great Falls, Montana
September 16-18, 1971

Montana Academy of Oto-Ophthalmology

Canyon Village, Yellowstone Park
August 26-28, 1971

For further information, contact James D. Morrison, M.D., Secretary-Treasurer, Montana Academy of Oto-Ophthalmology, Box 1856, Billings, Montana.

31st Annual AMA Congress on Occupational Health

Jackson Lake Lodge, Grand Teton National Park
August 29-30, 1971

Wyoming State Medical Society Annual Meeting

Jackson Lake Lodge, Grand Teton National Park
August 31-September 3, 1971

For information, write Wyoming State Medical Society, P.O. Box 1387, Cheyenne, Wyoming 82001.

American College of Surgeons

57th ANNUAL CLINICAL CONGRESS
Atlantic City, New Jersey
October 18-22, 1971

Open to all doctors of medicine.

Official forms for registration, housing and postgraduate courses are now available. Contact: Mr. T. E. McGinnis, American College of Surgeons, 55 East Erie Street, Chicago, Illinois 60611.

National Heroin Symposium

Medical Science Auditorium of the University of California San Francisco Medical Center
June 19-20, 1971

This symposium is cooperatively sponsored by: The Haight-Ashbury Free Medical Clinic, The Psychopharmacology Study Group, Continuing Education in the Health Sciences and The Student Association for the Study of Hallucinogens.

Address inquiries to: National Heroin Symposium, Continuing Education in the Health Sciences, U.C. San Francisco Medical Center, Dept. H, Room U-575, San Francisco, California 94112.

UCLA Extension Seminar
EFFECTIVE MEDICAL COMMUNICATION
University of California Residential Conference Center
Lake Arowhead, California
July 16-18, 1971

Lectures will deal with "The Scientific Report: Helpful Hints in its Preparation," "The Editor's Viewpoint" and "Recurrent Errors."

Further information is available by writing Donald Brayton, M.D., Director, Department of Continuing Education in the Health Sciences, Room 15-39, Rehabilitation Center, University Extension, UCLA, Los Angeles, California 90024, or telephone Mrs. Elizabeth Gifford at (213) 825-7186.

UCLA Extension Department of Continuing Education in Health Sciences
ADVANCED SEMINAR IN UROLOGY
University Residential Conference Center at Lake Arrowhead
August 11-15, 1971

The Seminar will cover subjects of interest to the medical-renal specialist as well as the urologist, stressing recent advances in the clinical and practical aspects of urology.

Further information is available by writing Donald Brayton, M.D., associate dean, postgraduate medical education, Room 15-39 Rehabilitation Center, West Medical Campus, University of California, Los Angeles, California 90024, or telephone Miss Kathleen Blake at (213) 825-7257.

120th Annual Convention American Medical Association
Atlantic City, New Jersey
June 20-24, 1971

The scientific program and exhibits will center at Atlantic City Convention Hall, while the AMA's policy-making body, the House of Delegates, will be in session at the Chalfonte-Haddon Hall Hotel.

Wesley H. Hall, M.D., of Reno, Nevada, will take office as new president of the AMA, succeeding Walter E. Bornemeier, M.D., of Chicago. A new president-elect, to take office in June, 1972, will be elected by the House.

The program will include hundreds of lectures, panel discussions, and symposia, scientific and industrial exhibits, daily showings of more than 30 new medical motion pictures, demonstrations of various diagnostic and treatment technics and many other facets designed to help the busy physician keep abreast of the latest advances in medical care.

The AMA Woman's Auxiliary of the AMA also will hold its annual convention in Atlantc City, June 18-24, at the Traymore Hotel. Mrs. G. Prentiss Lee will take office as new president, succeeding Mrs. R. C. L. Robertson.

Postgraduate Course in Laryngology and Bronchoesophagology
University of Illinois Hospital Eye and Ear Infirmary
Chicago, Illinois
October 4-9, 1971

This course is limited to fifteen physicians and will be under the direction of Paul H. Holinger, M.D. Instruction will be provided by means of animal demonstrations and practice in bronchoscopy and esophagoscopy, diagnostic and surgical clinics, as well as didactic lectures and several motion pictures.

Annual Otolaryngologic Assembly
University of Illinois Hospital Eye and Ear Infirmary
October 23-29, 1971

The Department of Otolaryngology, Abraham Lincoln School of Medicine, University of Illinois at the Medical Center, offers a condensed postgraduate basic and clinical program for practicing otolaryngologists under the direction of Emanuel M. Skolnik, M.D. It is designed to bring to specialists current information in medical and surgical otorhinolaryngology.

Interested registrants for the above two meetings will please write directly to the Department of Otolaryngology, Abraham Lincoln School of Medicine, University of Illinois at the Medical Center, P.O. Box 6998, Chicago, Illinois 60680.

PHONOCARDIOGRAPHY PULSE TRACINGS-VECTORCARDIOGRAPHY A WORKSHOP

September 27-30, 1971

This is an intensive four-day program covering in detail the field of phonocardiography and pulse tracings and vectorcardiography. Emphasis will be placed on the values and limitations of these techniques and related areas as applies to the patient's diagnostic problems. Two days will be dedicated to phonocardiography and pulse tracings and two days for vectorcardiography. The morning sessions will be devoted exclusively to individual analysis of tracings by the participants under the orientation of the local and guest faculties. This program is intended for those who wish a close and detailed exposure to the values and the limitations of these techniques.

PRESENTED BY:
The American College of Cardiology
and
Institute for Cardiovascular Diseases, Good Samaritan Hospital, Phoenix, Arizona

AT:
Mountain Shadows Resort Hotel, Scottsdale, Arizona

PROGRAM DIRECTOR:
Alberto Benchimol, M.D., Director, Institute for Cardiovascular Diseases, Good Samaritan Hospital

GUEST SPEAKER:
Bernard L. Segal, M.D., Associate Professor of Medicine, Hahnemann Medical College and Hospital, Philadelphia, Pennsylvania

FOR INFORMATION CONCERNING THE PROGRAM, WRITE:
Mr. William Nelligan
Executive Director
American College of Cardiology
9650 Rockville Pike
Bethesda, Maryland 20014

MEDICAL SPACE AVAILABLE near hospital. Medical Dental Building, 3600 South Logan, Englewood, Colorado, 781-3106. 571-1-3B

OFFICE EQUIPMENT FOR SALE—reasonable offers will be considered. If interested write for details to Mrs. O. C. Reed, 2417 West "A" Street, Torrington, Wyoming 82240. 471-2-3

THREE-YEAR OLD FULLY EQUIPPED, AIR CONDITIONED CLINIC BUILDING, 1800 sq. ft., for rent or sale. Ideal site for either office practice only or can use open staff hospitals in Brighton or Greeley. 45 miles from Denver on Interstate 80. Smog-free rural community, no drug problems, etc. Call 659-5687 after 6 p.m. 271-2-6B

COLORADO SPRINGS, EASTERN SECTOR, established professional building with laboratory, X-ray and professional pharmacy. For sublease immediately. Space contains one consultation office, two examining rooms, private waiting room, business office and utility office with private entrance and basement storage area. Please contact: Associates in Internal Medicine, P.C., 2310 North Tejon Street, Colorado Springs, Colorado, telephone 636-5234. 471-4-3B

OFFICE EQUIPMENT FOR SALE: Complete set up (3 rms.) including #75 Ritter Table, Castle Light, Hamilton exam tables with matching cabinet and stool, 3 wall transformer oto-ophthalmoscope comb, Birtcher ECG, Ultra-sound, stainless steel tables and instrument pans and instruments. Autoclave, centrifuge and other lab. equipment. Many other items all of which are almost new. Also a 100 MA Profexray with complete dark room equipment. Would like to sell all as one unit. Located in Denver area. Call: 429-3074 or 429-4076 after 5:30 in evening. 671-1-1

GENERALIST FOR INTERESTING, active practice excluding OB. Adequate vacation and Postgraduate Study time. Salary commensurate with experience and productivity. Early opportunity for partnership. Year round out-door recreation with casual living in beautiful country. No state income tax. Start October 1, 1971. Contact: Allen L, Sklar, M.D., Lakeview Medical Associates Ltd., 774 Mays Boulevard, P.O. Drawer 1029, Incline Village, Nevada 89450, Phone: (702) 831-0420. 671-2-3

OFFICE SPACE excellent satellite office, decorated December, 1970, furnished. Rent or lease, $300.00 per month. Bear Valley Shopping Center, 3100 South Sheridan Boulevard, Denver. Call 757-7675. 671-10-1B

SEPARATE OFFICE SPACE available to Board Qualified orthopedic surgeon. Retain fee for assigned hours for coverage of emergency room. Staff privileges in adjacent hospital. Nevada Medical Properties, Inc., 1401 East Lake Mead Boulevard, North Las Vegas, Nevada 89030. 671-4-4B

SEPARATE OFFICE SPACE available to Board Qualified internist. Retainer fee for assigned hours for coverage of emergency room. Staff privileges in adjacent hospital. Nevada Medical Properties, Inc., 1401 East Lake Mead Blvd., North Las Vegas, Nevada 89030. 671-5-4B

DENVER METROPOLITAN AREA. Associate left. Need AAGP associate. Association or assume my practice. Fully rented medical dental building investment also available. Flexible terms. Contact: Box 671-6-1, Rocky Mountain Medical Journal, 1809 East 18th Avenue, Denver, Colorado 80218. 671-6-1

WESTERN PROFESSIONAL BUILDING, 1701 So. Federal Blvd., space available, 1,800 sq. ft.—new building will divide. Southwest Denver. Large drawing area—two opthalmologists, general dentist and optician already in building. Psychiatry, dermatology, neurosurgery, ENT, psychology, neurology and periodontics are among the many specialties and subspecialties not yet represented in this thriving suburban area of Denver. Adequate parking. Excellent location. Easy access to St. Anthony, Beth Israel, Porter and Swedish Hospitals. For information contact: L. A. Winograd, M.D. 934-5835. 671-7-1B

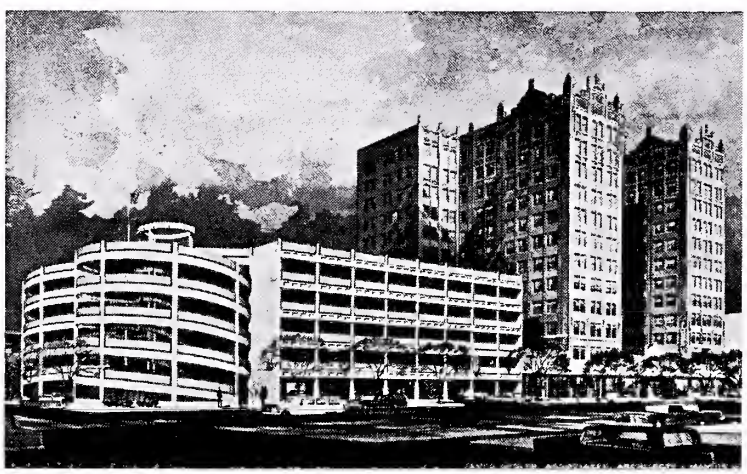
FOR SALE: Building on very busy street (4 lanes) but in a residential neighborhood. Ideally suited for medical offices. Two dental offices in same block. There is a ready-made practice waiting for an active LDS GP or internist as there are none in the area. Contact: Allen Lowe, D.D.S., 6634 S. Broadway, Littleton, Colorado 80121. Phone (303) 798-3412. 671-8-1B

450-1360 Sq. Ft. in the CHERRY HILLS MEDICAL ARTS BUILDING COMPLEX, 3535 So. Lafayette Street, Englewood, Colorado. Minutes from two fine hospitals and the New Englewood Shopping Center. Complex consists of 27 doctors. Will consider remodeling to suit. For information call 761-2543, eves. 985-1909. 671-9-2B

SEPARATE OFFICE SPACE available for general practitioner. Adjacent to hospital with staff opening. If desirous may supplement income by covering emergency room on assigned hours. Nevada Medical Properties, Inc., 1401 East Lake Mead Blvd., North Las Vegas, Nevada 89030. 671-3-4B

CENTRALLY LOCATED

For the medical and dental professions



REPUBLIC BUILDING CORPORATION

306 REPUBLIC BUILDING, DENVER, COLORADO 80202
PHONE 534-5271

Here, in the heart of downtown Denver, the Republic Building is the best-known Medical-Dental Center in the Rocky Mountain West, complete with 24-hour operation, X-ray; pathological and dental laboratories, pharmacy, drug and supply stores.

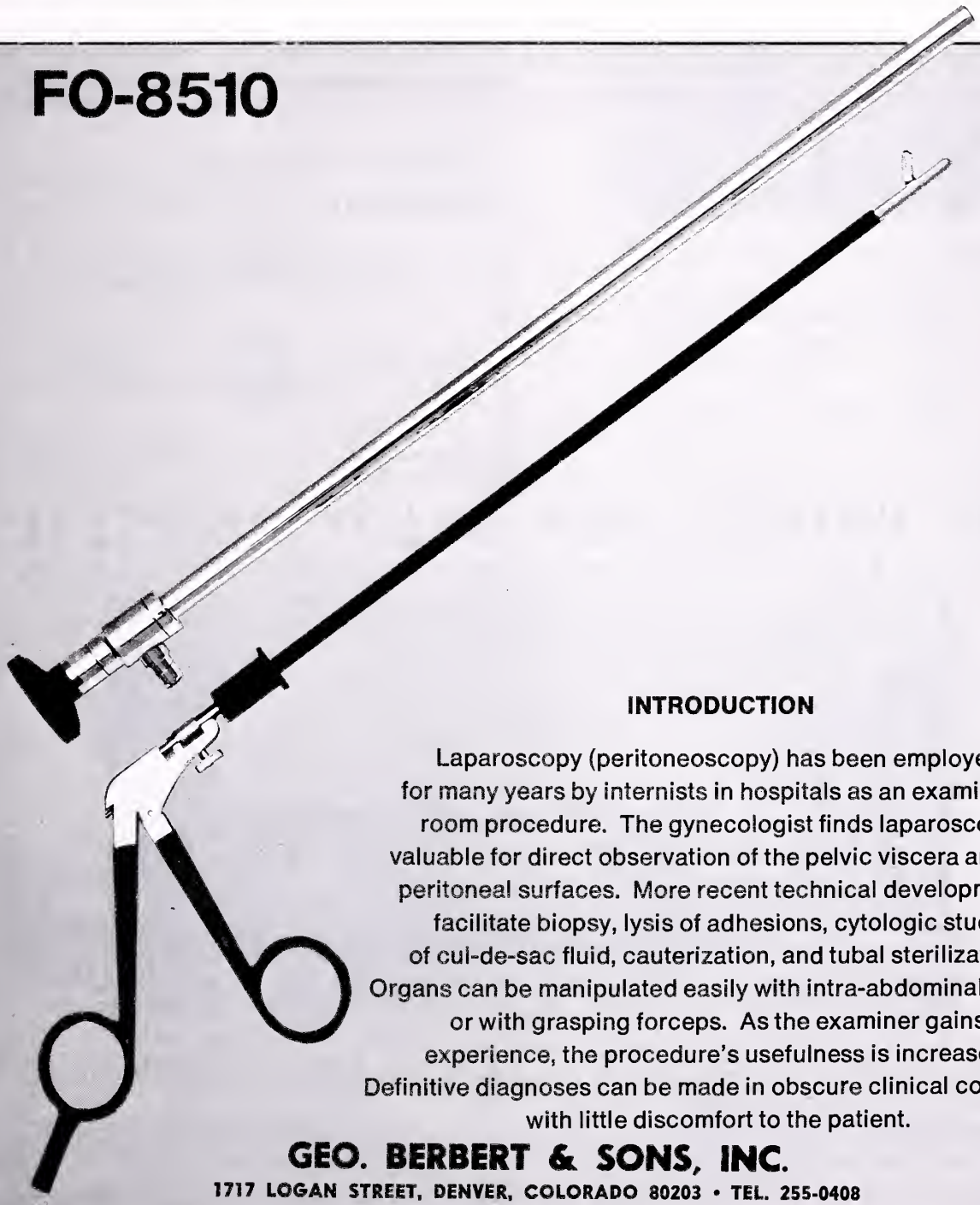
With the completion of the new 500-car, self-service parking facility, the Republic Building—designed and operated for the medical and dental professions—offers the ultimate in patient-convenience and medical facilities.

Space is available. Ask for illustrated brochure.

ACMI

FIBER OPTIC LAPAROSCOPE

FO-8510



INTRODUCTION

Laparoscopy (peritoneoscopy) has been employed for many years by internists in hospitals as an examining-room procedure. The gynecologist finds laparoscopy valuable for direct observation of the pelvic viscera and the peritoneal surfaces. More recent technical developments facilitate biopsy, lysis of adhesions, cytologic study of cul-de-sac fluid, cauterization, and tubal sterilization. Organs can be manipulated easily with intra-abdominal probes or with grasping forceps. As the examiner gains experience, the procedure's usefulness is increased. Definitive diagnoses can be made in obscure clinical conditions with little discomfort to the patient.

GEO. BERBERT & SONS, INC.

1717 LOGAN STREET, DENVER, COLORADO 80203 • TEL. 255-0408

1903-1971 — OUR 68th ANNIVERSARY

BROADMOOR yourselves

for the pure pleasure of it all!

Discover America's finest resort facilities, dining and accommodations, here within 5,000 acres of enjoyment at the gateway to the Colorado Rockies.

The BROADMOOR Colorado Springs, Colorado

ARTIFICIAL EYES

Plastic eyes and glass eyes specially made to fit the most difficult cases. An expert eye-maker is in our office at all times to give your patients the satisfaction they must have. In business since 1906.

Write or phone for full details.

DENVER OPTIC COMPANY
330 University Bldg. • 16th and Champa • 825-0229
Denver, Colorado 80202

Newton Optical Company

Catering to Medical Profession Patronage

309 16th Street
Denver 80202

GUILD OPTICIANS

Telephone
534-8714

THE EMORY JOHN BRADY HOSPITAL

401 Southgate Road COLORADO SPRINGS, COLORADO 80906 MElrose 4-8828

E. JAMES BRADY, M.D., *Medical Director*

CAMPBELL F. RICE, *Superintendent*

Francis A. O'Donnell, M.D.
Robert W. Davis, M.D.
Richard L. Conde, M.D.
Paul A. Draper, M.D.
Charles W. McClellan, M.D.
James E. Edwards, M.D.

For the care and treatment of Psychiatric disorders.

Individual and Group Psychotherapy and Somatic Therapies.

Occupational, diversional and outdoor activities.

X-ray, Clinical Laboratory and Electroencephalography.

American College of Cardiology 63

Arch Laboratories
Dicarbosil 40

Berbert, George & Sons 65

Broadmoor Hotel 66

Burroughs Wellcome Company
Neosporin 28

Campbell Soup Company
Diabetic Diets 49

Colorado College of Medical and Dental Assistants 67

Denver Optic Company 66

Emory John Brady Hospital 66

Flint Laboratories
Synthroid 17-20

Lederle Laboratories
Achrostatin 32

Lilly, Eli & Company
Cordran Tape 6

McNeil Laboratories
Parafon Forte 5

Newton Optical Company 66

Picker Medical Products 48

Practice Management Services 42

Public Service Company of Colorado 67

Publishers Press/
Monitor Publications 50

Republic Building Corporation 64

Roche Laboratories
Efudex ..... Cover II, Page 1
Noludar 35
Librax 52-53
Librium ..... Cover IV

Searle, G. D. & Company
Flagyl ..... 68, Cover III

Squibb, E. R. & Son
Theragran 3

Graduate Medical Assistants

Available for placement now, seven-month intensive preparation, including one month internship in a doctor's office

We welcome your inquiries!

Contact Director of Placements at (303) 222-1526

Colorado College
of Medical and Dental Assistants
655 Broadway, Denver, Colorado

It's tough to quit smoking, but if determination and willingness means anything, our stacks will kick the habit for good.

Public Service Company of Colorado

You Can't Blame a Girl...

(when her husband's at fault)

Rocky Mountain Medical Journal

Y

Library
College of Physicians
19 South 22nd Street
Philadelphia, Pennsylvania 19103

COLORADO • MONTANA • NEVADA • NEW MEXICO • UTAH • WYOMING

LIBRARY OF THE
COLLEGE OF PHYSICIANS
OF PHILADELPHIA
JUL 20 19
MDS

Call it what you will, it may be premalignant.

Before

3/29/67 Before therapy with 5%-FU cream. Patient P. T. shows a moderately severe solar keratotic involvement. Note residual scarring from the previous cryosurgical and electrosurgical procedures on forehead and ridge of nose adjacent to periauricular area.

After

6/12/67 Seven weeks after cessation of therapy. Reactions have subsided. Residual scarring is not seen except for that due to prior surgery. Inflammation has disappeared and face is clear of keratotic lesions.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

ınd Efudex® (fluorouracil) 5% cream can resolve it.

ıll it actinic, solar or senile keratoses, any regard it as "precancerous."[1,2]

pical fluorouracil, considered by some dermatologists to be a major vance in the treatment of multiple solar keratoses,[3,4] offers the physi- n a relatively inexpensive alternative to cryosurgery, electrodesic- ion and cold knife surgery. Of the topical fluorouracils available, only ıdex offers 2% and 5% solution and 5% cream formulations—formula- ns that have proved effective in the treatment of these mutliple lesions.

;ual duration of therapy, 2 to 4 weeks.

ıdies showed that with the 2% and 5% Efudex preparations, the usual ·ation of therapy was only 2 to 4 weeks.[5] Other studies with topical)rouracil revealed that when concentrations of less than 2% were d, significant numbers of lesions recurred.[6]

'eats the lesions you can't see, too.

merous lesions, not apparent prior to 2% and 5% Efudex therapy, nifested themselves by definite reactions, while intervening skin ıained relatively unaffected.[5] The early eradication of these subclini- lesions (which may otherwise have undergone further progression))bably accounts for the reduced incidence of future solar keratoses in ients treated with topical fluorouracil—especially with 5% centrations.[6]

·w to identify solar keratoses.

pically, the lesion—a flat or slightly elevated brown to red-brown)ule—is dry, rough, adherent and sharply defined. Multiple lesions the rule.

edictable therapeutic response.

e response to a typical course of Efudex therapy is usually racteristic and predictable. After 3 or 4 days of treatment, erythema ins to appear in the area of keratoses. This is followed by a moderate ntense inflammatory response, scaling and occasionally moderate derness or pain. The height of this response generally occurs two ks after the start of therapy and then begins to subside as treatment topped. Within two weeks of discontinuing medication, the ammation is usually gone. Lesions that do not respond should)iopsied.

rences: 1. Allen, A. C.: *The Skin, A Clinicopathological Treatise*, ed. 2, New York, ıe & Stratton, 1967, p. 842. 2. Dillaha, C. J.; Jansen, G. T, and Honeycutt, W. M.: atment of Actinic Keratoses with Topical Fluorouracil," in Waisman, M. (ed.): *maceutical Therapeutics in Dermatology*, Springfield, Ill., Charles C Thomas, 1968, . 3. Belisario, J. C.: *Cutis, 6*:293, 1970. 4. Sams, W. M.: *Arch. Derm., 97*:14, 1968. ıta on file, Hoffmann-La Roche Inc., Nutley, New Jersey. 6. Williams, A. C., and , E.: *Cancer, 25*:450, 1970.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

now

Efudex®

(fluorouracil)

cream/solution

ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222 (area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204

Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

Address all manuscripts, organization and other news items relating to editorial content to appropriate state editor, see below.

JULY 1971

Volume 68, Number 7

Editorials

9 What if we Lose?

10 "A Crisis in Confidence"

10 Wyoming State Medical Society

11 Our Cover Photo

Articles

13 An Unusual Foreign Body — *Paul R. Yedinak, MD, Rock Springs, Wyoming*

15 Fractures of the Orbital Floor — *John M. Omohundro III, MD, Sheridan, Wyoming and James H. Elliott, MD, Nashville, Tennessee*

19 Recent Trends in Medical Education — *Kenneth B. Castleton, MD, Salt Lake City, Utah*

26 A New Therapeutic Scleral Lens — *Loran B. Morgan, MD, Torrington, Wyoming*

29 Uterine Inversion — *H. N. Stephenson, MD, Newcastle, Wyoming*

32 The Missing Intrauterine Device in Pregnancy — *Colin Bailey, MD, Gillette, Wyoming*

37 Hemangiomas of the Esophagus — *Richard W. Loughry, MD, Cheyenne, Wyoming*

40 Hansen's Disease in a Peripheral Nerve — *Claude O. Grizzle, MD, Cheyenne, Wyoming*

42 Gastrointestinal Malignant Melanoma — *Richard H. MacLean, Sheridan, Wyoming*

44 Psychopharmacology in the Geriatric Patient — *Margaret Reed, MD, Sheridan, Wyoming*

Organization

52-53 Wyoming State Medical Society Annual Meeting

54 Wyoming—Proceedings of the House of Delegates

61 Colorado

Features

3 Letters to the Editor

62 Obituaries

63 Meetings

64 Medical School Notes

65 Book Corner

66 Want Ads

67 Index to Advertisers

OUR COVER PHOTO

Cheyenne Frontier Days—
(Photo courtesy of Wyoming Travel Commission)

See our editorial concerning this photo on page 11.

EDITORIAL BOARD

Colorado: Douglas W. Macomber, M.D., Scientific Editor, 1800 High St., Denver (Chairman of the Board); Carl H. McLauthlin, M.D., Assistant Scientific Editor, 510 Republic Bldg., Denver.

Montana: Gerald A. Diettert, M.D., Scientific Editor, 501 W. Broadway, P. O. Box 1307, Missoula, Montana 59801; L. Russell Hegland, Associate Editor, 1236 North 28th Street, Billings.

Nevada: Harry J. McKinnon, M.D., Scientific Editor, 3196 Maryland Pkwy. S., Las Vegas; Wesley W. Hall, M.D., Assistant Scientific Editor, 607 N. Arlington Ave., Reno; Nelson B. Neff, Associate Editor, 3660 Baker Lane, Reno.

New Mexico: Marcus J. Smith, M.D., Scientific Editor, Coronado Bldg., Santa Fe; William S. Curran, M.D., Assistant Scientific Editor, 920 Stanford NE, Albuquerque; Ralph R. Marshall, Associate Editor, 3010 Monte Vista Blvd., NE, Albuquerque.

Utah: Alan E. Lindsay, M.D., Scientific Ed[itor], 699 East South Temple, Salt Lake City; J[ohn] W. Brewster, Associate Editor, 42 South [1]East Street, Salt Lake City.

Wyoming: Francis A. Barrett, M.D., Scien[tific] Editor, 1616 E. 19th St., Cheyenne; Ro[bert] Smith, Associate Editor, P. O. Box 1387, C[hey]enne.

Donald G. Derry, Managing Editor

Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations: It is the Official Journal of the Rocky Mountain Medical Conference and those medical socicties who are represented on the Editorial Board listed above.

Advertising: National representative: State Journals West, 693 S[utter] Street, San Francisco, California 94102.

Subscription: $7.00 per year in advance, postpaid in the United S[tates] and its possessions; single copy 60c plus postage. Subscription is [in]cluded in medical society dues of sponsoring state medical organ[iza]tions.

Copyright: This Journal is copyright, 1971, by the Colorado Med[ical] Society. Requests for permission to reproduce anything from [the] columns of this Journal should be addressed to the Journal Of[fice].

Second class postage paid at Denver, Colorado

To the Editor:

I have come to the conclusion that ours is one voice still remaining for the private practitioner and someone not only has a great deal of common sense but is still on the side of the physician on the firing line, whatever his specialty, there at *RMMJ*.

All of us can commiserate with Dr. Diettert of Missoula, Montana in his remarks on Continuing Education. We here in New Mexico have just legislated a loaded pistol at our heads without any guidelines of any kind but permitting refusal of re-licensure of those who do not meet the requirements of this sudden necessity on the medical scene. Most doctors are interested and always have been in improving their knowledge and skills to fit their individual practices and who shall determine, in the "continuing education" category, where all the refined techniques and the money for their application will come from in every doctor's office? For instance, I have just received an estimate of a hearing facility for my office including a "research package" "for approximately $20,000 or $38,000 depending on exact instrumentation." Hell, I can barely pay my tax package to finance the socialists and liberals intent on my destruction.

Some sixty-two-year-old doctor wrote recently in *Medical Economics* about working until he drops. There could be no slow-down or let-up because of the increasing necessity of working harder to do all the things he felt he must do. I don't recall his mentioning the great increase in dues in the "learned societies" but know that anyone who goes to the conventions can find some sort of "self-assessment program" or "self-evaluation testing" to occupy his already over-burdened time. The only vacation some doctors can afford to take is a trip to a convention and haven't been anywhere with their families, after taxes to finance the socialist "restructure of the world," for years.

Who has all this damned "guilt-complex," anyway? This is the slickest of the techniques of the collectivists—self-criticism and finally the "carrot" or the "stick." It only widens the breach between the physician who has all his day to think these things up and the guy out in the sticks trying to take care of the patient. Sure, we stumble occasionally but not as frequently nor as badly as the propagandist would have us believe.

Elsie Garman's letter is the *denouement* for my reading when she quotes a quote "to the concept of a planned death." My thought is that anyone, just anyone who wants to help the population explosion with planning parenthood and abortion and euthanasia as three examples can buy himself a gun and end it all. I do know that the Bible says, "Thou shalt not kill," and Elsie's religious argument does not hold water despite the wisdom of her eighty odd years.

I have seen the idea of "peer review" being tossed about and wonder about the "peers of death" for the dispassionate slobs who would make this package available in "advanced societies." I have heard doctors calmly state that "we are working at the wrong end of the spectrum to legalize abortion."

If the liberal-socialist-collectivists would just leave us enough money after taxes to finance a good, well-earned vacation somewhere in "funland" possibly the end would come with a sudden call from Our Lord of "well done, thou good and faithful servant. Enter the Kingdom of Heaven."

Don't you, old editorial writer, feel like Marc Antony in his famous speech at the death of Julius Caesar when he said, "ah, judgment, thou are fled to brutish beasts and men have lost their reason?" I do.

Sincerely yours,
George S. Richardson, M.D.
Roswell, New Mexico

Con-
ven-
ience!

Dicarbosil®
ANTACID

Your ulcer patients and others will praise it. Specify DICARBOSIL 144's—144 tablets in 12 rolls.

ARCH LABORATORIES
319 South Fourth Street, St. Louis, Missouri 63102

Mylanta®
24 million hours a day.

Through the day, every day,
ulcer patients take
one million doses of Mylanta
for relief of ulcer pain.

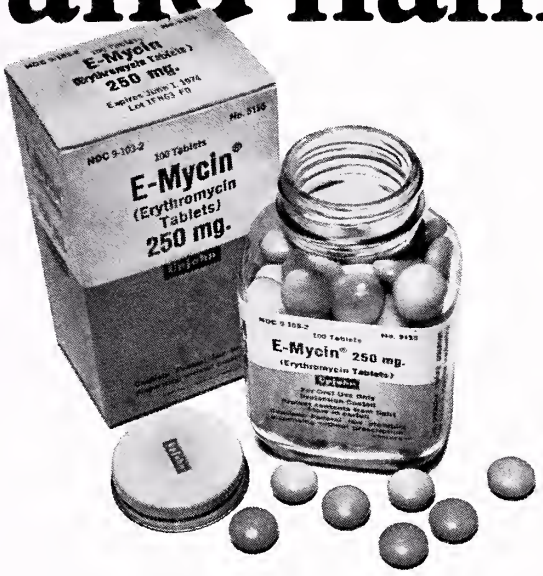
Mylanta®
LIQUID/TABLETS
aluminum and magnesium hydroxides plus simethicone

Good taste = patient acceptance
Relieves G.I. gas distress*
Non-constipating

*with the defoaming action of simethicone

Stuart PHARMACEUTICALS Pasadena, Calif. 91109
Division of Atlas Chemical Industries, Inc., Wilmington, Del. 19899

The least expensive* erythromycin has a brand name



Upjohn has reduced the price of E-Mycin® (erythromycin, Upjohn) by 25% following a change in manufacturing facilities. That makes E-Mycin the lowest priced* erythromycin on the market. Now your patients can have an Upjohn drug and save money besides.

*Prior to June 1, 1971

E-Mycin®

250 mg. tablets

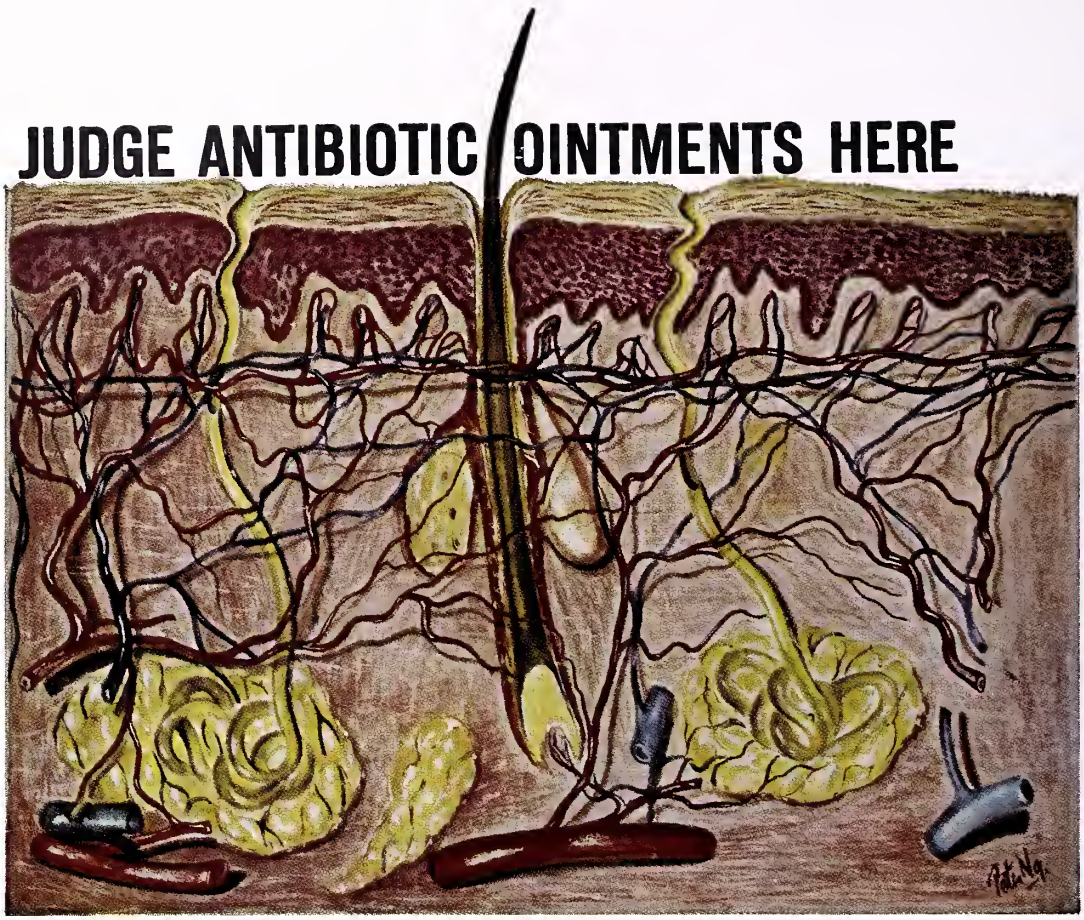
(erythromycin, Upjohn)

JA70-9803

Upjohn The Upjohn Company Kalamazoo, Michigan 49001

© 1970 by The Upjohn Company

JUDGE ANTIBIOTIC OINTMENTS HERE



Results on skin are final proof of any topical antibiotic's effectiveness

No in vitro test can duplicate a clinical situation on living skin. 'Neosporin' (polymyxin B—bacitracin—neomycin) Ointment has consistently proven its effectiveness in thousands of cases of bacterial skin infection. The spectra of the three antibiotics overlap in such a way as to provide bactericidal action against most pathogenic bacteria likely to be found topically. Diffusion of the antibiotics from the special petrolatum base is rapid since they are insoluble in the petrolatum, but readily soluble in tissue fluids. The Ointment is bland and nonirritating.

Caution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

Supplied: Tubes of 1 oz., ½ oz. with applicator tip, and ⅛ oz. with ophthalmic tip.

Complete literature available on request from Professional Services Dept. PML.

'NEOSPORIN'®

brand

POLYMYXIN B-BACITRACIN-NEOMYCIN OINTMENT

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.

Picture of low back pain

treated with Parafon Forte® TABLETS

Paraflex® (chlorzoxazone)* 250 mg.
Tylenol® (acetaminophen) 300 mg.

Parafon Forte tablets help to relieve pain, restore mobility... stop pain-spasm feedback

Here is why. PARAFON FORTE provides:

nonsalicylate analgesic equal to aspirin for relief of pain,[1,2] yet unlikely to cause the gastric irritation[2,3] or increased bleeding time[4] associated with aspirin therapy.

and a skeletal muscle relaxant shown in extensive clinical studies to be useful in a variety of low back disorders[5-7] ...but which is not an antihistamine or tranquilizer derivative and is unlikely to produce a tranquilizing or sedative effect.[8]

Prescribe PARAFON FORTE for effective spasmolysis and analgesia in acute sprains, strains and myalgias of the lower back, including acute exacerbations of chronic conditions. Your patients will appreciate the restored comfort and freedom of movement it usually provides.

Contraindications: Sensitivity to either component. ***Warnings:*** *Usage in Pregnancy*—Use in woman of child-bearing potential only when potential benefits outweigh possible risks. ***Precautions:*** Exercise caution in patients with known allergies or history of drug allergies. If a sensitivity reaction or signs or symptoms suggestive of liver dysfunction are observed, the drug should be stopped. ***Adverse Reactions:*** Occasionally, drowsiness, dizziness, lightheadedness, malaise, overstimulation or gastrointestinal disturbances may be noted; rarely, allergic-type skin rashes, petechiae, ecchymoses, angioneurotic edema or anaphylactic reactions. In rare instances, *Paraflex* (chlorzoxazone) may possibly have been associated with gastrointestinal bleeding. While *Paraflex* (chlorzoxazone) and chlorzoxazone-containing products have been suspected as being the cause of hepatic toxicity in approximately eighteen patients, it was not possible to state that the dysfunction was or was not drug induced. ***Usual Adult Dosage:*** Two tablets q.i.d. ***Supplied:*** Scored, light green tablets, imprinted "McNEIL" —bottles of 100.

References: **1.** Batterman, R. C., and Grossman, A. J.: Fed. Proc. *14*:316, 1955. **2.** Goodman, L. S., and Gilman, A., ed.: The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970. **3.** Vickers, F. N.: Gastroint. Endosc. *14*:94, 1967. **4.** Mielke, C. H., Jr., and Britten, A. F. H.: New Engl. J. Med. *282*:1270, 1970 (Corresp.). **5.** Kestler, O. C., and Gyurik, J.: Industr. Med. Surg. *21*:372, 1962. **6.** Forster, S., et al.: Amer. J. Orthop. *2*:285, 1960. **7.** Data on file, McNeil Laboratories, Inc. **8.** Friend, D. G.: Clin. Pharmacol. Ther. *5*:871, 1964.

*U.S. PATENT NO. 2,895,877

McNEIL LABORATORIES, INC., FT. WASHINGTON, PA. 19034

McNEIL

Now available for your prescribing needs

Cordran® Tape

Flurandrenolide Tape (4 mcg. per sq. cm.)

Additional information available upon request • Eli Lilly and Company, Indianapolis, Indiana 46206

Lilly

660124

What If We Lose?

WOULD YOU BELIEVE ME, doctor, if I told you that the chances are all too good that your way of life will die soon? No, you wouldn't believe me, nor would most of the physicians in this country. They would say, "Impossible, no one can damage my way of life except the IRS. I have my family, my health, and my practice. What more do I need?"

The complacency of doctors who don't "need anything else" is indeed tragic. Now, as never before, we need to be strong by being members of the AMA, State Medical Societies and AMPAC, in order to keep our way of life.

While many hundreds of doctors have recently quit the AMA because dues have gone up seventy-six cents a week, Senator Edward Kennedy is pounding to get through Congress his Eighty Billion Dollar National Health Insurance Bill (S3). This measure is being promoted by organized labor and the committee for National Health Insurance. One hundred eight out of 535 members of Congress have gone along and sponsored this bill, which calls for total federal control and regulation of all systems of health care delivery for all Americans. This covers your way of life and your practice. Every day of it and every way of it. This is real socialized medicine. Proponents have admitted that with this type of socialized medicine, federal personnel would inevitably be approving the budgets of local hospitals, setting fee schedules for local doctors, and taking other steps which could easily lead to the complete federal domination of all American Medicine.

And who will pay you, while you, as a tax payer, pay the 80 billion? You will soon find out, for the battle is on and it is a crisis. Do you know who is fighting the battle and facing the crisis for you and your way of life? Yes, the AMA and AMPAC.

Kennedy has 108 sponsors. The AMA has 131 for its (our) Medicredit Bill. Kennedy says "free health care for all." AMA's Medicredit Bill says "free health care for all who are truly indigent," via a tax credit system depending upon income. Cost of AMA's bill is eleven billion.

But that's not the only battle the doctors of the AMA have. They are fighting federally run (laymen controlled) peer review—chiropractic inclusion for all programs, federal review of your patients' records, federal fee schedules, and on to 2,800 medical bills in the 91st Congress and more to come in the 92nd Congress.

Now when the big fight is on and, now as never before, we need a strong AMA. We are suffering from loss of membership, thus causing financial loss. This is happening just when the going gets tough. Our AMA staff in Washington and Chicago must go to battle for us without full armor because of membership loss and because of the lack of the needed 100 per cent support of the physicians they serve.

AMPAC needs members and money to put into 108 Congressional seats men who will vote to preserve your way of life. AMA needs your support to survive—to survive for you. Don't expect the AMA to be able to carry the battle without your support.

In Wyoming we have:
336 M. D.'s
State Members, 289
AMA Members, 237
WYOPAC Members, 52

What are the doctors in your state doing? Please join now. Let's not let the social planners put our profession on the line just because we did not give 100 per cent full support to our AMA, who wants to stop them.

What if you didn't, and we lose?

Fenworth M. Downing, MD
President, Wyoming State
Medical Society

"A Crisis in Confidence"

As we approach the 1972 presidential election, the practice of medicine and the role of doctors and hospitals will again become a major issue in the campaign. I cannot remember a time in American medicine when the very essence of the practice of medicine was so subjected to the possibilities of radical change as now exists. Similarly, I doubt there has been a time when as many diverse proposals for change have been brought forth by so many individuals, groups, associations, commissions and organizations.

Our general approach in this country toward change in institutional function has been one of conservative problem-solving. And, today, we are beset by a host of problems: the high cost of health care, the shortage of health manpower, the high cost of medical education, the financial plight of medical schools, the problem of mal-distribution of physicians, the complex inter-personal difficulties arising from third party participation, the changing roles of governmental institutions, and many others. The medical profession should pursue the goals of lowered health cost, better protection against the costs of illness, increasing the supply of doctors, nurses, and para-medical personnel, and better distribution of these members of the health team.

However, the development of sound and responsible programs that will retain the very best of medicine and obviate or diminish the worst of our present system of health care will be a difficult job at best. It will require a great deal of give and take, understanding and consideration from all parties involved, including members of the general public, governmental officials, leaders in the health care field, members of the medical profession and those charged with the administration of our hospitals.

Give and take among those involved is the key to the solution. The thrust of this editorial is to suggest that we face one overriding impediment in the successful resolution of our problems. It is an impediment that must be corrected if a successful approach towards betterment of our health care system is to be obtained. This impediment is one of "crisis in confidence."

When did this erosion of confidence between the medical profession and public begin? Why are so many of our public officials ready, willing, and anxious to take axe in hand if there is any decimation of the medical profession to be done? Why are so many people so everlastingly alert to the most remote possibility of a malpractice action against doctors? Why are all doctors always and eternally to blame for all the ills of our health system?

But now, let's look on the other side of the coin. How many doctors only describe certain elected officials with worse than four letter words? Why are some doctors suspicious of every voluntary effort to improve some area of health care? Why is it that large numbers of our colleagues refuse to treat the poor, those on welfare or Medicaid?

I think it is clear that there is a very real divorcement of confidence on both sides of the street. This laceration is of such magnitude that we will never be able to develop a good, sound system for the future of medicine until a re-marriage of mutual respect and understanding is achieved. My hope is that the medical profession will take the lead in healing this wound.

Francis A. Barrett, M.D.*

*Scientific Editor, Wyoming Section, RMMJ.

Wyoming State Medical Society

Every so often we hear a physician express his worries and frustrations about the encroachment of government — federal and state—into his practice. And the distressing fact is that it is true, government is intervening between the patient and the practitioner.

The mood of the times is that government, in either a spirit of statesmanship or the lowest form of ward politics—depending on your point of view—has chartered a course "to insure equal and full health coverage to every man, woman or child in the United States today."

It is evident that government at all levels

was unprepared, administratively and financially, for the Medicare and Medicaid plunge they took into health care. Having said this, however, the fact remains that the Congress, administration in Washington, major news media, and subsequently, the vast majority of Americans today now express the conviction that "complete health care at a predictable price" is the "right" of every man, woman and child in the country.

It should be pointed out at this juncture that quality medical care is also the goal of the medical profession and has been for many years.

But the "plain vanilla" facts are that the now aroused public is not going to allow government—federal or state—to withdraw from the health care field and is demanding new programs, detailed explanations of complicated problems, and a "guarantee" that health care costs will be limited to a controlled monthly or annual charge.

This, then, is the situation that the doctors of the Rocky Mountain area and the nation face in mid-1971.

The next logical step, therefore, is to decide how we are going to exist in this "glass house" situation. The initial reaction—and probably the most self-satisfying—is to say "the hell with 'em" and sit each in his own office or clinic until the man comes with the regulations on how to practice medicine, which were drawn up by people with little or no knowledge of health care.

From another point of view, the current situation offers the physician a challenge—the most important challenge he has ever received. The task before the physicians in Wyoming, Colorado, the Mountain area, the West Coast, the nation, is to take an active part in shaping the new health care programs.

This does not mean just writing a letter to your U.S. Senator or Congressman. Many of the new programs are in the planning or experimental stage. *Now* is the time when the individual can crank in ideas, innovations and sound judgment based on practical experience.

Now is the time when pilot programs undertaken by the state medical societies, major county societies or their foundations for health care can hammer out valid health care programs which can influence planning and voting in Congress and the federal government. *Now* is the time for the individual physician and the organizations representing him to play an essential role in shaping the structured health care programs which are on the horizon and under which the next two generations of doctors will live and work.

Eliminate the rhetoric, the excuses, the philosophical distaste and we believe the challenge becomes frighteningly simple. . . . Will you and the physicians with whom you come in contact each day get involved in the formation of the "new" health care systems which stand at the door or will you allow others to dictate the regulations, procedures and reimbursement policies?

One or the other will most surely happen!

Robert Smith,
Executive Secretary
Wyoming State Medical Society

Our Cover Photo

Cheyenne Frontier Days—one of the nation's top rodeos—is 75 years old this year. And the famous "Daddy of 'em All" has grown taller and longer. This year's Diamond Anniversary celebration is three days and two nights longer, featuring nine days of events Saturday, July 24, through Sunday, August 1. A record-breaking purse of $90,000 is being offered to the roughest cowboys this year, and another level of seats is being added to the main grandstand to provide seating for 3,000 additional spectators.

In addition to the nine day-time rodeo shows, the 75th "Daddy of 'em All" will feature eight Night Shows with such stars as Roy Rogers and Dale Evans; Festus, Sam the Bartender and Newly O'Brian of TV's "Gunsmoke;" Larry McNeely and Jerry Reed of the "Glen Campbell Goodtime Hour" and the Casper Troopers, plus the exciting chuckwagon races. Since Cheyenne Frontier Days originated in 1897 as "Frontier Day," it has become the world's oldest and largest rodeo.

What is a Medical Management Consultant?

He is a businessman who specializes in the business side of medical practices. He has no products to sell, so he can bring an outside, unbiased-expert, third-party point of view to help you interpret your practice results and produce improvements & progress.

A medical management consultant helps you realize your practice goals and personal financial aspirations more quickly because his specialized experience eliminates your trial & error.

Medical management consultants sell no insurance, no investments, no forms, no systems. They work only on a fee-for-service basis for physicians. Their only income is from the professions which they serve.

Our firm is nationwide, but our home is in the Rocky Mountains — in Denver. There is a PMS consultant in your area. Just give him a call:

Albuquerque, New Mexico	Herb Hughes	(505) 298-5809
Albuquerque, New Mexico	Jae Listek	(505) 298-5809
Billings, Montana	Harry Miller	(406) 248-6203
Boulder, Colorodo	George Hunt	(303) 444-3149
Colorada Springs, Calarado	Gearge Schromeyer	(303) 598-2042
Denver, Colarado	Dick McMullen	(303) 986-2394
Denver, Calorodo	Jim Meador	(303) 623-7165
Denver, Colorado	Ed Rarden	(303) 623-7165
Ogden, Utah	Doyle Allen	(801) 394-5828
Santo Fe, New Mexico	Don Hughes	(505) 983-1314

Or clip the coupon below and drop it in the mail to our Central Office in Denver.

Have your President drop in to see me.

Name _____ Telephone _____

Address _____ City _____ State _____ Zip _____

PRACTICE MANAGEMENT SERVICES

601 BROADWAY DENVER, COLORADO 80203

An unusual foreign body

Case report with unbelievable recovery

Paul R. Yedinak, MD, Rock Springs, Wyoming

THE FOLLOWING CASE is unusual for two reasons: first, the huge size of the foreign body injury and, second, the rare isolated injury of the femoral nerve.

CASE REPORT

At 6:30 a.m. on December 14, 1969, a thirty-five-year-old white man was brought to the emergency room in Rock Springs by ambulance. He was accompanied by Dr. Tom Johnston of Pinedale, Wyoming, who provided the available history. About 3½ hours before, the patient had, at high speed, driven a 1956 borrowed Cadillac into a wooden railing on the bridge crossing one of the branches of the Green River at Daniel, Wyoming. Dr. Johnston and the ambulance attendant arrived at the scene of the accident and extinguished a fire in the front end of the wrecked car, which was off the road on the edge of the river. Then they discovered that the driver of the car was impaled by a long piece of bridge timber that prohibited his being removed from the wrecked vehicle. The proprietor of the small store at Daniel arrived as a spectator and was dispatched for a saw. It is reported he asked, "Wood or meat?" The bridge timber was sawed through on both sides of the impaled driver who was then removed from the car to the ambulance.

Examination in the hospital emergency room revealed an intoxicated, thin, muscular red-headed man who responded rationally to questioning and was oriented and coherent. His blood pressure was 130/84 and his pulse rate 88. His injury was plainly evident in that the left side of his trunk had been impaled by a white painted splintered piece of wood about 3″ x 4″ in cross section and 2½ feet in length (Fig. 1). The jagged piece of timber had entered the left femoral-inguinal region apparently with the patient in the sitting position; it had headed upward into the left side of the pelvis, fracturing its way through the left iliac crest into the left loin and costo-vertebral angle area under the left posterior ribs.

The amount of external bleeding was surprisingly small. There was no evidence of head injury or injuries to the upper extremities or cervical spine. Auscultation of the heart was normal and both lungs aerated well. The abdomen was rigid and peristaltic sounds were absent. Catheterization of the urinary bladder produced clear urine. After a naso-gastric tube was placed, x-rays of the abdomen were taken which revealed a comminuted fracture of the left iliac crest and a non-opaque foreign body in the lower abdomen. Subcutaneous emphysema was present in the left iliac and buttock region. The colon was identified and contained a moderate amount of gas and stool. There was no evidence of free peritoneal air. X-ray visualization of the kidneys and ureters with the aid of intravenous contrast medium showed no extravasated dye. The hematocrit was 29 per cent.

In the operating room under general anesthesia, the traumatized area was washed, debrided, and pubic and abdominal hair shaved. With the patient's left leg extended, the skin and soft tissues overlying the impaling piece of timber were tightly stretched. With a scalpel all the soft tissues anterior to the foreign body were incised and the bridge timber removed from the patient's body. This left a long open trough wound from the base of the scrotum on the left side, through the femoral-inguinal area, the fractured left iliac cres, and the muscles of the left loin to expose the retroperitoneal surface of the descending colon, the lower pole of the left kidney, and extending up under the left posterior costal margin. The wound was retracted widely and debrided of many fragments of wood, paint, and devitalized tissue. It was thoroughly irrigated with saline solution.

Fig. 1. Large Wooden Guard Rail Projecting from Left Femoral to Left Costo-Vertebral Areas.

The left femoral artery and vein were bared over a distance of about 3" within the femoral triangle and were intact. The left femoral nerve had been torn apart and a portion of the nerve was missing. The distal end of the nerve was identified and tagged with black silk for future identification, but the proximal end could not be found. It was apparently lost in fractured bone fragments of the pelvis and the torn ilio-psoas muscle. Drains were placed and all skin edges loosely approximated with wire sutures. The upper end of the wound in the costo-vertebral angle area was packed open. Two other penetrating wounds of the left postero-lateral thigh region were debrided and closed.

The abdomen was then opened through a left lower paramedian incision with lateral retraction of the rectus muscle and exploration of the abdomen performed. There were no penetrating injuries of the abdominal viscera. The descending colon was bruised and displaced medially. Its surface and mesentery were intact. There was a small hematoma of the meso-sigmoid. No reparative procedure was necessary within the abdomen and the wound was closed. The patient received 2000 cc. blood and 1000 cc. Dextran during operation and the ensuing hours.

The day following operation, it was demonstrated that the muscles innervated by the left femoral nerve were paralyzed. The patient was unable to lift his left foot off the bed, unable to flex the thigh or to extend the leg at the knee. The antero-medial and lateral aspects of the thigh and lower leg were anesthetic.

The patient recovered without complication and was ambulatory with crutches on the eighth postoperative day. Three weeks after the injury, the wounds were healed and the patient walked from the hospital with the aid of a cane and a locking brace for the left knee. The most recent report on the patient was January 2, 1971, at which time he was being detained in the Pinedale jail for allegedly having passed some "bum" checks. It was reported that he did not wear a leg brace and walked without difficulty throwing the left lower leg forward to lock the knee in hyperextension.

Discussion

Isolated femoral nerve injury is very rare. Because of its intimate relationship to the femoral vein and artery, any severe nerve injury usually results in the loss of limb and frequently the loss of life by hemorrhage. Injuries of the femoral nerve are occasionally met as complications of hernia repair. The injury most frequently seen is inclusion of the nerve in sutures inserted through the inguinal ligaments.

Anatomically the femoral nerve arises from the undivided rami of L2, L3, and L4. In its early course, the nerve penetrates the psoas major muscle. It then extends downward and on passing deep to the inguinal ligament lateral to the femoral artery it enters the thigh. Just below the inguinal ligament it divides into a number of branches, one of which becomes the saphenous nerve and accompanies the femoral vessels in the sub-sartorial canal. Leaving the canal it becomes cutaneous and terminates at the middle of the medial border of the foot.

In the thigh the femoral nerve supplies the pectineus, sartorius, quadriceps femoris, and adductor longus muscles. These muscles serve as extensors at the knee and as an aide in flexing the hip at the thigh. In femoral palsy, a wasting of the anterior thigh is evident. There is a failure of the quadriceps to tighten when the effort is made to tighten the knee cap and elevate the heel from the bed. The patient is able to stand and walk, even though he cannot actively extend the leg at the knee and his difficulty to flex the hip. Level surfaces can be negotiated without much difficulty although the knee is over-extended, but marked difficulty is encountered going uphill or upstairs. •

PICKER Medical Products

3890 ELM STREET — TEL. 388-5731 — DENVER, COLORADO 80207

Offices also in:
Colorado Springs, Colorado
2236 Glenwood Circle, 635-8768

Salt Lake City, Utah
21 Kensington Street, 487-7519

Albuquerque, New Mexico
113 Sierra Dr., S.E., 255-1288

Medical X-Ray Equipment
Accessories & Film
Nuclear Equipment

Fractures of the orbital floor*--

Current concepts in treatment

John M. Omohundro III, MD, Sheridan, Wyo., and James H. Elliott, MD, Nashville, Tennessee

Because of the overlap of interests among the various specialties, fractures of the orbital floor are treated by a wide variety of practitioners, each with his own philosophy of management. A critical review of thirty-three patients sustaining fractures of the orbital floor was carried out in order to determine the accuracy of x-ray diagnosis and when, and on what basis, surgery should be performed.

ALL PATIENTS in this study were hospitalized at either Vanderbilt University Hospital, Nashville Veterans Administration Hospital, or Midstate Baptist Hospital, and the patients were analyzed from their records. All cases were pure floor fractures without other contributing facial or orbital fractures, which could conceivably give similar complaints. A pure blow-out fracture of the orbit is defined as a fracture through the floor of the orbit or the lamina papyracea as a result of a blow to the eye with transmission of hydraulic pressure to the resulting fracture site. Pfeiffer,[1] and Smith and Regan[2] have demonstrated this mechanism using cadavers.

Results

It has been known for a long time that conventional plain orbital films were not reliable in making the diagnosis of orbital floor fracture. In fact in our study, they yielded approximately 50 per cent error both in false positives and false negatives (Fig. 1). On the other hand 3-8 cm. tomograms were much more reliable. In the ten cases with proven blow-out fracture at the time of surgery, who had pre-op tomograms, there was only a 10 per cent error (one false negative). Therefore, preoperative x-rays are helpful, but not infallible, and clinical judgment remains the most valuable tool for deciding the management of an individual case.

LIMITATIONS OF X-RAY IN DIAGRAMS OF BLOWOUT FRACTURE OF ORBITAL FLOOR

	NUMBER OF CASES	FRACTURE DEMONSTRATED OR SUSPECTED ON X-RAY	NUMBER WITH FRACTURE AT SURGERY	CORRELATION		
				ACCURATE	FALSE POSITIVE	FALSE NEGATIVE
CONVENTIONAL ORBITAL VIEWS	21	14	18	11 (52%)	3 (14%)	7(33.3%)
TOMOGRAMS	10	9	10	9 (90%)	0 (0%)	1(10%)

Fig. 1

One point which became apparent in the analysis of these cases was that not all blow-out fractures of the orbit necessitate surgical intervention. We were specifically searching for guidelines as to when surgery is necessary. As previously shown, it was apparent that x-rays were not always accurate and, moreover, they are not helpful in and of themselves in determining whether surgical intervention is necessary. Fig. 2 shows four cases in which no surgery was performed even though there was x-ray evidence of a floor fracture. In each case there was no limitation of motion in any field of gaze. In two cases diplopia was present immediately after the trauma. As seen in the diagram,

*John M. Omohundro III, MD, is currently in private practice at Sheridan, Wyoming. James H. Elliott, MD, is currenty Chief of the division of Ophthamology, Department of Surgery, at Vanderbilt University Hospital in Nashville, Tennessee.

ANALYSIS OF CASES IN WHICH
SURGERY WAS NOT PERFORMED

X-Ray Evidence Of Blowout Fracture	Post Trauma Findings		Follow-up Findings		
	Diplopia	L.O.M.	Diplopia	LOM.	Enophthalmos
4	2	0	0	0	0

Fig. 2

none of the four cases developed any disability in terms of limitation of motion, diplopia or enophthalmos. Therefore, we concluded that limitation of motion was a most important factor in the decision not to operate on these cases.

Analysis of all cases which had surgical exploration also indicates that limitation of motion is a helpful clinical sign in determining whether to explore a patient with a floor fracture (Fig. 3). As a general rule it would be expected that if the extra ocular muscles or orbital contents are trapped or incarcerated in the fracture site that severe disability would be predictable. Conversely, the absence of entrapment of extra-ocular muscles or orbital contents would be expected not to cause subsequent disability. Of the 27 surgical cases, 18 had definite entrapment visible at surgery. Seventeen of the patients had pre-op limited motion and eighteen had diplopia. Conversely, 9 of the 27 cases had no definite entrapment despite the floor fracture. Most likely surgery in these cases was unnecessary and may even be deleterious.

ANALYSIS OF 27 CASES
WITH SURGICALLY DEMONSTRATED
BLOWOUT FRACTURE

	Number	Per Cent
Entrapment of orbital contents	18	66.6%
No entrapment of orbital contents	9	33.3%

Fig. 3

TENTATIVE CONCLUSIONS

X-RAY L.O.M.	+ +	Explore
X-RAY L.O.M.	NEG. +	Explore
X-RAY L.O.M.	NEG. NEG.	Do not explore immediately but follow closely
X-RAY L.O.M.	+ NEG.	

Fig. 4

Three of the nine cases had pre-op limitation of motion and six of the nine had diplopia. Limitation of motion again seems to be of some help in making the decision.

The conclusions reached are delineated in Fig. 4. We felt that from one to ten days was a reasonable waiting period. After ten days, extraction of orbital contents from the fracture site becomes increasingly difficult. It should also be stated that we used a forced duction test to separate true limitation of motion from traumatic muscle paresis.

With positive tomograms and limitation of motion, or with negative x-rays and positive limitation of motion, exploration would seem feasible. On the other hand, negative x-rays and negative limitation of motion, or with positive x-rays and negative limitation of motion, the best course to follow would be close observation. These criteria seemed to agree with Goren, Strauss, and Osbon,[3] although they were using different surgical technic.

Comment

Our data does not permit analysis of the post-op results by type of procedure. Also there is insufficient follow-up to evaluate the success of the surgery relative to the time performed after trauma. These are certainly questions that need to be answered by careful study. •

REFERENCES

[1] Pfeiffer, R.: Traumatic Enophthalmos. Archives of Ophthalmology, 30:718, 1943.

[2] Smith, Byron, Regan, W. F., Jr.: Blow-out Fracture of the Orbit. American Journal of Ophthalmology, 44:733, 1957.

[3] Goren, S. B., Strauss, R. B., Osbon, D. B.: Blow-out Fractures of the Orbital Floor. American Journal of Ophthalmology, 61:893, 5-1966.

The causes of vaginitis are multiple

Trichomonads... monilia... bacteria
You can depend on AVC—comprehensive therapy that combats all three major vaginal pathogens, alone or in combination.

AVC
Cream (aminacrine hydrachlaride 0.2%, sulfanilamide 15.0%, allantoin 2.0%)

Suppositories (aminacrine hydrachlaride 0.014 Gm., sulfanilamide 1.05 Gm., allantain 0.14 Gm.)

Controindicotions: Known sensitivity ta sulfonomides.
Precoutions/Adverse Reoctions: The usuol precautions for topical and systemic sulfonomides should be observed because of the possibility af absorptian. Burning, increosed local discomfort, skin rash, urticario or other monifestations of sulfanamide taxicity ore reasons ta discontinue treotment.
Dosage: One opplicatorful or one suppository introvogi-nally ance ar twice doily.
Supplied: Cream – Faur-ounce tube with or without applicator. Suppositories – Box of 12 with applicatar.

TRADEMARK: AVC AV-104 2/71 Y-149

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC
PHILADELPHIA, PENNSYLVANIA 19144

AVC
The treatment is singular

"Welcome back, Ann"
As adjunctive therapy
DOUBLE STRENGTH
Orenzyme®
Bitabs
One tablet q.i.d.
Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units; equivalent in tryptic activity to 40 mg. of N.F. trypsin
Reduces swelling
Hastens healing
Speeds recovery
trauma
One tablet q.i.d.
Indications: When used as adjunctive therapy for the rapid resolution of inflammation and edema, good results have been obtained in:
□ Accidental Trauma □ Postoperative Tissue Reactions.
Other conventional measures of treatment should be used as indicated. In infection, appropriate anti-infective therapy should be given.
Contraindications: ORENZYME BITABS should not be given to patients with a known sensitivity to trypsin or chymotrypsin.
Precautions: It should be used with caution in patients with abnormality of the blood clotting mechanism such as hemophilia, or with severe hepatic or renal disease. Safe use in pregnancy has not been established.
Adverse Reactions: Adverse reactions with ORENZYME have been reported infrequently. Reports include allergic manifestations (rash, urticaria, itching), gastrointestinal upset and increased speed of dissolution of animal-origin surgical sutures. There have been isolated reports of anaphylactic shock, albuminuria and hematuria. Increased tendency to bleed has also been reported but, in controlled studies, it has been seen with equal incidence in placebo-treated groups. (See Precautions.) It is recommended that if side effects occur medication be discontinued.
Dosage: One tablet q.i.d.
THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144
TRADEMARK BITABS U.S. PATENT NO. 3,004,893 9/70 0-009A 161

A
BUILDING BLOCK
TO RECOVERY

Orenzyme® Bitabs

Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units; equivalent in tryptic activity to 40 mg. of N.F. trypsin

Recent trends in medical education*

Kenneth B. Castleton, MD, Salt Lake City, Utah

WE ARE LIVING IN A period of great ferment. It is broad in scope, and it is affecting all of our lives. It is social, political, economic and scientific. It involves all levels of education, and medical education is caught in this maelstrom. The changes that are developing in medical education are more profound than at any time since the classic report of Abraham Flexner in 1910.

At the turn of this century, medical education was indeed in a sad state in this country. There were about 165 medical schools. Most of them were small, proprietary, and amounted to little more than diploma mills. Anyone could start a medical school — a doctor, a group of doctors, a business man. There was virtually no control and no standards. At about this time the states began to be concerned about the quality of medical education and a number of them introduced for the first time State Board Examinations. It immediately became apparent that many doctors were poorly trained and could not pass these examinations. Not only the practicing physicians but the public itself became concerned. As a result, largely of the efforts of the American Medical Association, the Carnegie Foundation sponsored a survey of medical education by Dr. Abraham Flexner. Dr. Flexner visited all of the existing medical schools, and his report was devastating. Within a very few years half the medical schools had closed their doors, and the ones that survived were, with few exceptions, those that were an integral part of the university. The changes in medical education were dramatic. It put medicine on a scientific basis. It put medical students in the laboratory. It brought in full time faculties particularly in the basic sciences. The standards of education were dramatically elevated.

Now we are in the midst of another evolutionary change which approaches revolution! Whether the impact will be as great as the Flexner report remains to be seen, but in any case it will be profound.

Both medical education and the practice of medicine are currently under a barrage of criticism. Medical schools are being criticized because they are not turning out enough doctors, are "turning out specialists" instead of family physicians, and the educational process is too prolonged and is too costly. It is said that medical schools are more concerned with research than they are with teaching.

The private practice of medicine is also under severe criticism. Doctors are criticized because they won't make house calls and night calls. They are not available weekends and Wednesday afternoons. Patients wait long periods in their offices, and it often takes two weeks to get an appointment. The public has become sophisticated about medical care because of movies and television programs dealing with doctors, health columns in the newspapers, articles in popular magazines, and books dealing with medical practice. The doctor is painted as a money-greedy person who is more interested in getting rich than in taking care of patients. All this is particularly interesting since it is occurring in a period of unprecedented successes, such as the control of infectious diseases, dramatic strides in surgery, including open heart surgery and organ transplantation, marked reduction in maternal and infant mortality, and the increase in longevity. Medical students are getting better training than ever before, and the level of professional standards has never been higher. This paradoxical situation is accounted for by this "period of rising expectations" by the public, who are demanding more and better care than ever before.

*Presented at the Mid-Winter Seminar of the Wyoming State Medical Society, in Sheridan, Wyoming, February 19, 1971. The author is Vice President for Medical Affairs, University of Utah.

Numerous studies, including the Report of the Health Manpower Commission, state that there is a serious shortage of physicians. Some question this and feel that the shortage is really more apparent than real and is due to a maldistribution rather than an actual shortage. Much of the criticism is directed toward our system of delivery of health services which is said to be inefficient, wasteful, archaic, and costly.

Let us now examine how medical schools and medical education is responding to this criticism and this challenge. What are the newer trends in medical education? One of the most dramatic changes is related to efforts to increase the output of physicians. In 1945, there were 77 medical schools in this country. This year there are 103 in operation and most of these new ones have become operational within the last ten years. In addition, at least a dozen more schools are in various stages of organization and will open within the next three or four years. In addition to the new schools, many medical schools are trying desperately to increase the size of the admitting classes. The problem here is not the lack of qualified students to enter school. Indeed, there are far more qualified students than there are openings in medical schools. The problem is one of money and faculty. Medical education is extremely expensive. It is expensive for the student and for the taxpayer. Many medical schools are in serious financial difficulty, especially the private schools, because endowments have not increased as rapidly as the costs. The construction of medical schools and university hospitals has spiraled in recent years and most of the new medical schools have found their capital costs to be $30 million to $40 million, and some are much higher. Operational costs have also increased greatly, and the average annual budget for medical schools in this country is now about $15 million, although much of this is in the form of research expenditures which are financed by grants.

Another approach is to attempt to shorten the course. Here again we face a paradox. Never before has there been so much to be learned, yet the traditional medical course is the same length as it was 50 years ago. Obviously, it is impossible to teach all that is known in four years, much less three years. The responsibility for learning is being placed more and more on the student.

One of the most significant and important changes in curriculum provides increased flexibility in medical education. Over the years students have been subjected to a "lock-step" curriculum with very little flexibility. Most students have taken four years of college, four years of medical school, of which two years have been essentially basic sciences, and two years of clinical work. This has been followed by one year of internship and in the vast majority of cases (about 90%) a residency period of about three to four years. This has been a strict dichotomy between college and medical school courses and also between the basic science courses and the clinical courses. There have been few electives and all students, regardless of background, interests and career ambitions, have been subject to this rigid program. In recent years much of this has changed. After all, there is nothing sacred about four years of college, or even the four years of medical school. Efforts are being made to shorten the course, and students are being admitted to some medical schools after only two years of college work.

The time spent in the basic sciences is being reduced to one year and even less. Clinical work is being pushed into the second and even the first year, and in some cases into the first day of medical school. Electives have been greatly expanded, and in many medical schools the entire fourth year is devoted to electives. They are also available in the third, second, and even the first year. Students are given more free time which they can use for study or research and for other electives, even outside the medical school if they desire. For the first time we are recognizing that students are not from the same mold.

Lectures are used less frequently than a few years ago and in some courses they are replaced by seminars, bedside discussions, and small group presentations. Students are invoved in the physical examination of patients and history-taking at an earlier stage of their career. Medicine cannot be taught

solely from books and lectures, and much of it must be learned by doing.

With the increased mass of material to be learned, and the shorter time to learn it in, far more responsibility has been placed on the students. They are taught to become experts in retrieval of information, especially in the use of the library, so that they can quickly and easily obtain information on any subject. Emphasis is placed on the necessity of becoming perpetual students and a spirit of inquiry is encouraged. Problem solving replaces memorization. Subject material is taught with more emphasis on relevance since relevant material is retained better by the student and stimulates interest.

Students have changed too. In general, they are better prepared than their predecessors. Many of the better high schools are teaching material which was taught only in college a few years ago. The college grade point average of applicants is high and over the years there has been a steady improvement in the Medical College Admission Test scores. In general, students have a broader education than formerly, and many of them have had considerable training in the social and behavioral sciences and in the humanities, whereas most of their predecessors tended to concentrate on the physical and biological sciences.

Students are more critical of their courses and teachers. They demand better teaching and better course material, and they do not hesitate to say so. Many of them are more mature since a great many have served in the armed forces and some have been on religious missions or have served in the Peace Corps. There is some activism, but in general it is less pronounced than in college students, and we see fewer students of the radical element than their counterparts in college. "Relevancy" has become the magic word, and they demand that more relevant material be taught in their courses, particularly in the basic sciences as they relate to clinical medicine.

Students have far more concern for the social problems of today than their predecessors. They are concerned with the poor, minority groups, residents of the ghettos and others who they feel are not getting medical

We'll send you cash instead of flowers

Flowers and candy are nice, but when you're disabled and can't work there's no substitute for cash — cash to help pay the bills until you're back on your feet again.

That's why your Colorado Medical Society offers you Disability Income Protection that can pay you up to $1,000.00 a month when you're sick or hurt and can't work.

You choose the protection that best suits your requirements from among 34 different plans — each one designed to fill a special need.

So now, while you're enjoying good health, protect yourself and your family with this primary protection from Mutual of Omaha. Get full details on this fine plan by completing and mailing the coupon below today.

Mutual of Omaha®
The Company that pays

Life Insurance Affiliate: United of Omaha
Mutual of Omaha Insurance Company
Home office: Omaha, Nebraska

Colorado Division Office
Mutual of Omaha
2nd Floor, Railway Exchange Bldg.
Denver, Colorado 80202

Please rush me full details on the Colorado Medical Society's Disability Income Protection Plan.

Address .....

Name .....

City ..... State ..... Zip .....

4-7-10-71

care in sufficient quantity and quality. Medical students in a number of schools have set up clinics for the poor, staffed by medical students with the help of nursing students, medical technology students, and interested members of the faculty and practicing profession. Many are critical of organized medicine and of the practicing physicians, who they believe are concerned too much with their income and concerned not enough in providing medical care for the poor. They are disturbed about air pollution and water pollution, war, over-population, and the atomic bomb. They are demanding a greater role in the decision-making process in medical education. They want a voice in decisions affecting curriculum, promotions, tenure, faculty appointments and selection of students, as well as other matters which affect the students themselves.

There are other social problems which are of concern not only to medical students but to medical educators, as well as to practicing physicians. We live in a very mobile society. Even doctors move much more than in past generations. This poses problems of licensure, and strong sentiment has developed to modernize our licensure laws and regulations making it possible for physicians to move from one state to another without the great inconvenience and expense of going through the licensure process of the past, provided they have had good training and there are no personal, legal or moral problems which would make them undesirable residents of a state.

There is a need for more minority students in medicine. Particularly, there is a great need for blacks, Chicano and Indian doctors. Most medical schools are making desperate efforts to attract qualified members of these groups into medical school, hoping that when they become physicians they will return to their people to practice since they relate much better to their own race than do the white physicians. Efforts are also being made to attract more students from poverty groups. These students, in most cases, require more financial aid and often require more assistance in medical school if their premedical training has not been of the highest order.

There is an important difference between medical care and health care. Medical care involves those services provided by physicians and other health professionals. Health care is much broader in scope and includes not only medical care but all the other factors that determine health. Among these are poverty, air and water pollution, adequate housing with proper heating, recreation, productive jobs, drug and alcohol abuse, good nutrition and others. It is useless and wasteful for physicians to provide high quality medical care to a sick child if, on discharge from the hospital, he goes back to his former inadequate, poorly heated house, infested with rats, a substandard diet, contaminated water, heavily polluted air, lead paint on cribs, crowding, and lack of recreational facilities. For these reasons, physicians must take a greater interest in social problems. Although as physicians they cannot correct these social problems themselves, they can use their influence as concerned citizens. More importantly, they should provide vigorous leadership to influence legislation, rules and regulations which will promote good health. Medical students have become aware of these problems, and I suspect they will play a greater role than their predecessors in helping to solve them.

Medical education is facing some serious problems. It has been estimated that about a third of the medical schools are in serious financial trouble. Some are threatened with closure. In some areas state tax support is now being given to private schools to "bale them out." Tuition rates have been rising rapidly but, since this makes up such a very small part of the budget, it does not do much to solve the problem. Federal support has been reduced in some programs, particularly in training grants and new research grants and, although a number of new programs have been instituted like the Special Improve Grant, there is no assurance that they will continue, and already some of them appear to be phasing out. This, together with the rapidly rising costs, the decrease in scholarship and loan funds, the increase in the number of medical schools which require substantial federal capital funds, as well as operational funds, the increased size of the

admitting classes in many schools, pose extremely difficult financial problems for medical schools in the future. Federal, state, and private funds, including generous support by alumni, will be essential to avoid even more serious problems than exist now—and possibly disaster for some schools.

What Can Wyoming Do?

I was asked to make some comments regarding what the Wyoming State Medical Association might do in affiliation or in cooperation with medical schools which would be of benefit to the people in Wyoming. There are several thoughts which occur to me.

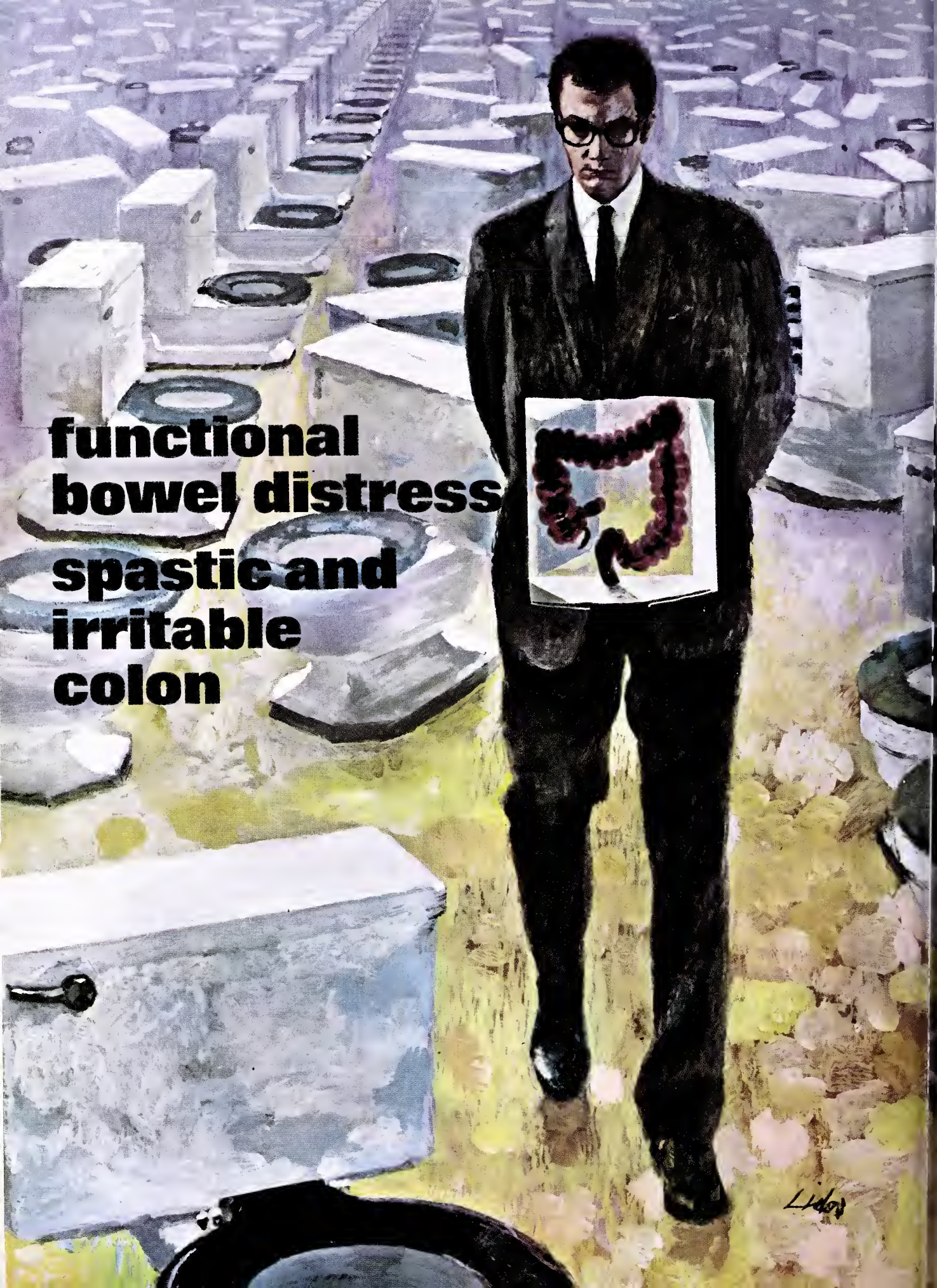
The establishment of a fully accredited four year medical school in Wyoming would appear to be impractical at present and in the foreseeable future because of the very substantial financial burden it would place on the state, even with federal funds which provide financial incentives for new schools and enlarging schools. A more realistic alternative might be to establish a program at the University of Wyoming, incorporating the first, or possibly the first and second years of medicine, including programs in basic sciences and introductory courses in the clinical sciences. This would be much less expensive but would still involve substantial financial outlay, mostly for faculty and probably some for capital improvements. It would be infinitely cheaper, however, than establishing a fully equipped medical center with a teaching hospital.

A third and possibly even more realistic plan might be to establish an affiliation with one or several WICHE medical schools whereby Wyoming students desiring to enter medical school could be admitted on a quota system, provided they qualify. However, to be successful, it would probably require some legislative appropriation by the Wyoming State Legislature to support the school or schools involved in the affiliation. It is doubtful, in my opinion, if taxpayers of the states in which the medical schools are located would be willing to permit their school to accept such an arrangement without realistic financial support, since to do so would add to the financial burden of their states. Indeed, some states are forcing their state medical schools to restrict the number of out-of-state medical students being accepted by their state medical schools for the same reason.

Aside from formal educational programs as noted above, there are other possibilities that should be explored. One of the most promising would be to work out a cooperative arrangement between the Wyoming State Medical Society and the medical schools, whereby students would work with Wyoming practitioners on a preceptorship basis, probably in a Family Practice Program. A slightly different program would be for the medical students to send residents in Community and Family Practice Programs to Wyoming to work with select practitioners in rural areas, cities, towns, and hospitals as part of their formal residency training.

There are other possibilities which could be explored, including the Oklahoma plan, where a rural health center would be established, affiliated with the medical school, whereby the practitioners in the center would go to the university medical center at regular intervals for training, and university hospital personnel, especially residents, would be sent to the rural center to replace practitioners and get valuable training themselves. I am not sure how successfully this plan is working, but it should be explored.

Finally, medical schools might want to consider establishing pilot projects in rural practice in Wyoming on an experimental basis in an attempt to develop new and better systems for the delivery of health care to the rural areas. This is a fertile field for health care delivery research which some schools are interested in pursuing. •


functional
bowel distress
spastic and
irritable
colon

move up to "the Robinul response"

In treating hypermotility associated with functional lower G-I disorders are you disappointed in the results you've been getting with some of the synthetics? Then *move up* to a potent antispasmodic—Robinul® Forte (2 mg. glycopyrrolate). It provides prompt, pronounced, prolonged suppression of hypermotility, making it a highly effective agent in functional bowel distress, as well as in spastic and irritable colon. Robinul Forte also exerts a more selective action on the gastrointestinal tract. If the patient has a "one tract mind" concerning his lower G-I symptoms, you can help control the anxiety and tenseness by prescribing Robinul®-PH Forte (2 mg. glycopyrrolate with 16.2 mg. phenobarbital —warning: may be habit forming).

when lower G-I symptoms demand a potent synthetic antispasmodic

Robinul® 2 mg. Forte (glycopyrrolate)

■ **INDICATIONS** Robinul Forte (glycopyrrolate, 2 mg.) and Robinul-PH Forte are double-strength dosage forms of glycopyrrolate. They are primarily indicated for patients who are less responsive to anticholinergic therapy and for control of the more prominent symptomatology associated with acute episodes of gastrointestinal disorders. Emphasis should be on total management, with due consideration of the various therapeutic modalities available, including diet, antacids, anticholinergic agents, sedatives, and attention to emotional problems. Accordingly, glycopyrrolate is recommended in the management of gastrointestinal disorders amenable to anticholinergic therapy, such as: (1) duodenal ulcer, duodenitis, pylorospasm; (2) gastric ulcer, gastritis, esophageal hiatal hernia, hyperchlorhydria, pyrosis, aerophagia, gastroenteritis; (3) esophagitis; (4) cholecystitis, chronic pancreatitis; (5) spastic and irritable colon, ulcerative colitis, functional bowel distress, diverticulitis, acute enteritis, diarrhea; and (6) splenic flexure syndrome, neurogenic gastrointestinal disturbances. When these conditions are associated with psychic overlay, the formulation with phenobarbital may be indicated. ■ **CONTRAINDICATIONS** Glaucoma, urinary bladder neck obstruction, pyloric obstruction, stenosis with significant gastric retention, prostatic hypertrophy, duodenal obstruction, cardiospasm (megaesophagus), and achalasia of the esophagus, and in the case of Robinul-PH Forte (glycopyrrolate with phenobarbital), sensitivity to phenobarbital. ■ **PRECAUTIONS** Administer with caution in the presence of incipient coma. ■ **SIDE EFFECTS** The most frequent side effect noted during clinical trials was dry mouth. Thirty-three (3.3%) of 1,009 patients receiving 32 mg. of glycopyrrolate a day complained of dry mouth of moderate to severe degree, but only 11 discontinued treatment because of this. Blurred vision, constipation, and urinary hesitancy have been reported infrequently. Other side effects associated with the use of anticholinergic drugs include: tachycardia, palpitation, dilatation of the pupil, increased ocular tension, weakness, nausea, vomiting, headache, dizziness, drowsiness, and rash. ■ **DOSAGE** The average and maximum recommended dose of Robinul Forte (glycopyrrolate, 2 mg.) or Robinul-PH Forte is one tablet three times daily (in the morning, early afternoon, and at bedtime). To obtain optimum results, dosage should be adjusted to the individual patient's response. After the more severe symptoms associated with acute conditions have subsided, the dose may be reduced to the minimum required to maintain symptomatic relief. ■ **SUPPLY** Robinul Forte (glycopyrrolate, 2 mg.) is available as scored, compressed pink tablets engraved AHR/2 in bottles of 100 and 500. ■ Robinul-PH Forte (glycopyrrolate, 2 mg., with phenobarbital, 16.2 mg.) is available as scored, compressed blue tablets engraved AHR/2 in bottles of 100 and 500.

A. H. Robins Company, Richmond, Va.

A·H·ROBINS

A new therapeutic scleral lens*

Loran B. Morgan, MD, Torrington, Wyoming

Having recently been faced with severe ocular injuries and infections, in epidemic proportions, the author concluded that some new revolutionary method of treatment must be invented.

THE TWO ACCEPTED principles of the treatment of severe ocular disease and infection are as follows: (1) Protect the eye from massage by the eyelid. This may be done by patching the eye shut. However, this precludes principle number two: (2) Constant instillation of suitable medications to the eye. The eye is notorious for its resistance to penetration by systemic medications. The only practical way of getting concentrations of drugs into the eye is by constant instillation on the cornea.[1] Previously, this has been accomplished by penetrating the upper lid and inserting a tube, which is then connected to a bottle, containing the suitable medication.[2] This, however, precludes principle number one.

I have devised a new therapeutic scleral lens, which combines the above two principles. This is a molded scleral lens with an attached polyethylene tube, which may be inserted into the cul-de-sac instantaneously and medications begun at once. The tube from the lens is connected by means of a pediatric flow-meter, which allows absolute titration of the solutions contained in the bottle of intravenous fluid.

The lens has been used by the author and by several other clinical ophthalmologists and, to date, thirty-seven eyes have been saved by this method of treatment, many of them with 20/20 vision restored.

*Presented at the Wyoming Winter Seminar in Sheridan, February 18, 1971. The JAMA of November 2, 1970, described this new lens under the heading "Plastic Scleral Lens Helps to end Pain in Injured Eyes and Promotes Healing" as reported by Dr. Morgan when serving with the American Medical Association's Volunteer Physicians for Vietnam program.

Material and Methods

Medi-FLOW† is a sterile disposable opthalmic device consisting of a polished polymethylemethacrylate scleral lens, in which a small hole is made temporally from the center. One end of a small polyethylene tube (7 inches long) is fused securely to the convex surface of the lens, at the site of the hole. A molded polyethylene luer-lock is attached at the other end of the polyethylene tube. Fluids can conveniently flow through the tubing to the concave surface of the lens by attaching the luer-lock to a syringe or an intravenous set.

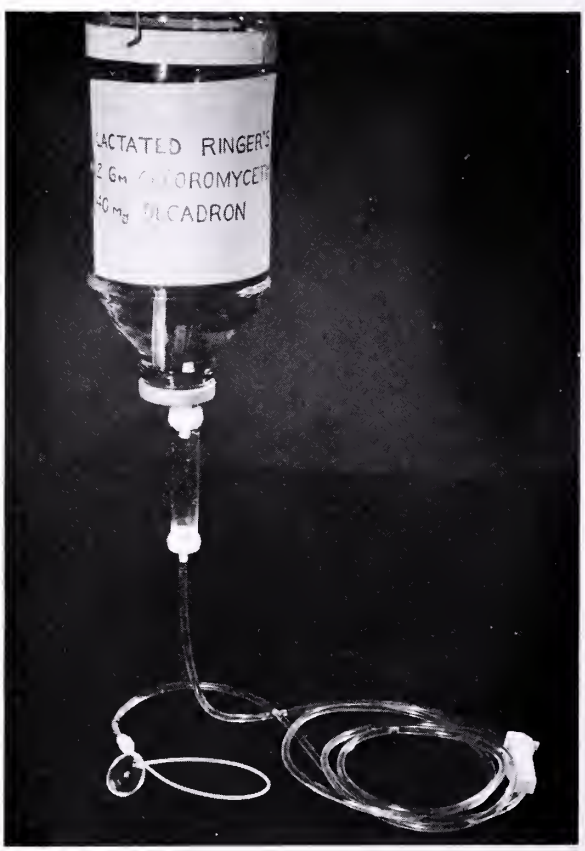


Fig. 1. medi-FLOW lens ready for immediate use.

†Flow Pharmaceuticals, Inc., Palo Alto, California 94303. Pat. Pend. c TM (FP) 1970.

Method of Application

After the instillation of a topical anesthetic, the medi-FLOW lens is inserted in the cul-de-sac with the polyethylene tube temporally. The tube is then taped to prevent rotation of the lens. The adapter is taped to the forehead and a bottle of intravenous fluid is attached by means of a measured volume administration set.

The Solution

1. For severe infection, Lactated Ringer's solution has been most successful. To a 500 cc bottle, one or two grams of chloromycetin succinate, and 20 to 40 milligrams of decadron for injection have been added and run at 50 ml/hour. It is usually kept running continuously for 72 hours by adding fresh solution every 10 hours.

2. For lavage of chemical burns or multiple foreign bodies, a hypodermoclysis set may be used so a medi-FLOW lens can be placed on both eyes at the same time.

3. The medi-FLOW is used for routine pre-operative preparation of the cul-de-sac, attached to a 10 cc syringe with suitable solution.

4. In the office it is used as an irrigating agent for simple non-embedded foreign bodies.

Advantages

1. The relief of pain, in 4 to 6 hours, is gratifying.

2. Temporizing is permitted while deciding on conjunctival flaps, corneal transplant, removal of intraocular foreign body, etc.

3. The tubing may be clamped and the flow discontinued while the patient moves about, without removing the lens.

4. With the solution running, the patient may be up on the side of the bed or in a chair, holding a towel to the side of the face.

Clinical Trials

The medi-FLOW lens has been used with success in eight cases of post-operative endophthalmitis; two cases of perforated corneal ulcer; endopthalmitis due to intraocular foreign body; severe allergic reaction of the conjunctiva, cornea, and eyelids; neuroparalytic keratitis preparatory to fitting a scleral lens; removal of foreign body lying on the cornea; reversal of absolute glaucoma, due to central vein occlusion in three cases; pseudomonas infection after scleral buckling, with a negative culture, after three days of the medi-FLOW lens; herpes simplex treated with IDU; four cases of hypopyon ulcer; many alkali burns; one severe gun powder burn; and finally in routine pre-operative medication.

Fig. 2. medi-FLOW lens attached to 10 cc syringe for ocular lavage.

Obviously, increases in concentrations of medications is not feasible, in that high concentrations are injurious to ocular tissues. Therefore, repeated instillations of medications are imperative. The use of a scleral lens not only protects the eye from abuse by the lids but also prevents symblepharon formation and contains the administered solutions between itself and the cornea where high concentrations of drugs may be maintained.

Ocular Emergencies

The main objectives in any ocular emergency are to assess the type and extent of damage, remove the offending material, arrest the damage, relieve the pain, and

make the patient comfortable, institute a sound basic post-trauma care program, which will promote healing and eliminate any possible scarring from occurring.

The early insertion of the medi-FLOW lens by the first trained person to see the emergency can prevent months of suffering, as well as permanent ocular damage.

I implore you not to "patch and ship" the patient! Start the medi-FLOW, and then seek consultation if necessary.

Summary

I have devised a new therapeutic scleral lens, which provides protection of the eye from constant lid abuse, and provides constant medication to the cornea.

A revolutionary type of treatment, combining the two well accepted methods of treating severe ocular injury and infection, is presented. The only method of obtaining intraocular concentrations of medications is by increasing the frequency of application of the medication to the cornea. The usual methods of administration, in other bacterial invasions of the body, are of only limited value in ophthalmic infections. Even subconjunctival injection of medications is most unsatisfactory for obtaining appreciable concentrations of medications *in* the eye.

The medi-FLOW lens has been used successfully in infections. Any antibiotic may be used but I seem to have the most success with chloromycetin, with or without steroid, and Lactated Ringer's solution. For lavage of chemical burns or multiple foreign bodies, a hypodermoclysis set may be used so the lens can be placed in both eyes at the same time. Medi-FLOW lenses should be used for routine pre-operative preparation of the culde-sac. In the office, it may be used for the removal of simple non-embedded foreign bodies.

Gratifying results have been obtained in severe ocular injuries and infections. The relief of pain has been most gratifying. The subsidence of infection has been surprisingly prompt. The restoration of normal corneal epithelium, with the absence of symblepharon, and 20/20 vision without corneal scarring, in alkali burns of the cornea, has been most remarkable. The use of the lens in routine pre-operative medication, preparatory to intraocular surgery, has lowered the instance of operative infection. •

REFERENCES

[1] Harris, John E.: Symposium on Ocular Therapy, volume 3, The C. V. Mosby Co., St. Louis, pages 96-105, 1968.

[2] Hessburg, Philip C.: Treatment of Pseudomonas Keratitis in Humans, American Journal of Ophthalmology, 61:896, 1966.

DRUG CONTROL

The Justice Department has cracked down on the widespread abuse of "pep pills" by proposing the reclassification of amphetamines and methamphetamines so as to require that they fall in the category of non-refillable prescriptions.

The action would regulate amphetamines and methamphetamines as narcotic substances such as morphine, codeine, and opium as they carry a potential for "severe psychological dependence" with "serious danger" to abusers.

Manufacturing quotas geared to estimated legitimate use and the filing by manufacturers of order forms would be required. However, at least one major manufacturer has endorsed the proposal.

Some lawmakers have complained that Justice did not go far enough and that the order should have included phenmetrazine (Preludin) and methylphenidate (Ritalin).—(From *The Month in Washington,* June 4, 1971).

Uterine inversion

H. N. Stephenson, MD, Newcastle, Wyoming

THIS PRESENTATION INCLUDES the report of two cases of uterine inversion, one a recurrence, and a discussion of this problem.

CASE REPORTS

Case 1. A thirty-year-old caucasian woman had an uneventful pregnancy. She had one previous pregnancy that was entirely normal and the ordinary delivery followed. Her expected date of confinement for this gestation was late February, 1955. However, on the 28th of January she entered the hospital due to premature rupture of the membranes and loss of amniotic fluid. There was also slight vaginal discharge. Active labor began about two hours after spontaneous membrane rupture and had been in progress for a couple of hours prior to admission to the hospital. The first stage of labor was ordinary with a moderate amount of discomfort, some fluid loss, minimal bleeding and active contractions. At 12:14 p.m. she delivered a five pound four ounce normal female baby. This delivery was accomplished with pudendal block anesthesia and a midline episiotomy. The placenta did not immediately separate spontaneously, and so the episiotomy was repaired. Manual separation of the placenta was tried after an hour had elapsed from the delivery of the infant. This was unsuccessful. The patient had received Pitocin immediately following delivery. During this prolonged third stage there was no unusual blood loss. About two hours following the end of the second stage the placenta finally appeared at the introitus, and as it was delivered so was the inverted fundus of the uterus. The anesthetist was summoned and the patient was anesthetized. The placenta was separated by blunt finger dissection from the fundus of the uterus with difficulty. Then with digital and manual pressure from below the uterus was slowly reverted to its normal situation. This was done with considerable difficulty because there was obvious evidence of the partially contracted cervical ring which made it difficult to replace the fundus through this ring. This maneuver was accompanied by an increase in blood loss. She was given two units of blood, and from the time of the reposition of the uterus her general condition was good. She was placed on broad spectrum parenteral antibiotics and discharged from the hospital on the seventh postpartum day at which time her hemoglobin was 11 grams. The rest of the puerperium was normal. The patient has had no subsequent pregnancies.

Case 2. A 24-year-old caucasian registered nurse presented herself for a first prenatal evaluation in November, 1968. At that time she had one child and the events of her first delivery are thus described in the words of her attending physician. "Her prenatal course was uneventful, except for some amazement on my part at her pelvic configuration and the fetal head position barely inside the vaginal orfice during the last three months. First and second stages of labor, somewhat earlier than predicted, were accomplished smoothly. Approximately eight minutes after parturition very moderate pressure on the fundus produced a sudden, unexpected and surprisingly facile prolapse and partial inversion of the uterus. The adherent placenta was peeled manually and the organ repositioned. Atony and profuse hemorrhage followed. Manual vaginal and abdominal pressure combined prevented total exsanguination until uterine packs and transfusions were accomplished. She was in shock approximately one hour. Five units of blood and cessation of blood loss brought the hemoglobin to 11 grams. Ideas of possible emergency hysterectomy were abandoned by the time the surgeon arrived. Three hours later she enjoyed normal vital signs and a firm fundus. Subsequently uterine involution obtained according to schedule. She was not advised against further pregnancies, but cautioned to have her records transferred should it occur. Mrs. H. is a fine nurse and a charming girl, but obstetrically, she shouldn't be trusted."

The patient had a smooth and uneventful gestation with the exception of slight vaginal spotting approximately four weeks prior to the termination of the pregnancy. Her expected date of confinement was May 22, 1969, and she entered the hospital on April 27. The following decription taken from her hospital chart will describe the ensuing events:

"She comes to the hospital today because her membranes have been ruptured over twelve hours. She has had no active labor. No significant bleeding. She did awaken this morning with severe

discomfort in the epigastrium. This persisted for some time. She was advised to be admitted to the hospital. Before she came she vomited once and felt much better. On arrival at the hospital she had no complaints other than gradual seepage of amniotic fluid. She had sporadic contractions throughout the day and shortly before being taken to the delivery room she had several rather markedly strong contractions. Rectal examination then revealed that the infant's head was on the perineum. Cervix was completely dilated. She was taken to the delivery room where the usual perineal preparation and draping was carried out. She received pudendal block with about 20cc of Xylocaine one per cent. Her pains became somewhat far apart and not too strong. Thinking of her previous unfortunate experience she was afraid to push, so the second stage of labor was somewhat drawn out. However, with some encouragement and a midline episiotomy she did deliver a viable five and one half pound female infant, who cried spontaneously and looked good. Thinking of her previous unfortunate experience no traction was placed on the umbilical cord. The fundus was not vigorously massaged. One hand was kept with the finger tips on the fundus to ascertain its confirmation and position. Placenta was slow to come. There was no significant bleeding. The cord gradually advanced through the introitus. The fundus could be felt, firm, in the abdomen. About the time the junction of the cord and the placenta was at the introitus the uterine fundus became difficult to feel. However, the patient spontaneously, without assistance, slowly delivered the placenta and with it the fundus of the uterus appeared through the introitis. There was no clear line of demarcation between the placenta and uterus. However, blunt dissection with the finger tips found a plane of separation and the placenta was thus separated from the external uterine fundus. The left hand was then placed against the uterine fundus and with steady milking type pressure the fundus was slowly inverted back into the introitis. It was completely through the introitis before the cervix could be felt. Fortunately the cervix had not contracted and, with persistent massaging pressure on the uterine fundus, it was slowly returned through the cervix until it could be palpated abdominally and was completely reverted. During this procedure there was moderate blood loss, although not severe. Immediately after return of the fundus to its normal status it became quite firm and Pit and Ergotrate were given. During the procedure of inversion and reversion of the uterus, the patient became pale and stated she felt somewhat faint. Her blood pressure never fell below 100 systolic and there were no other signs of shock. Her pulse remained strong. She was watched closely after delivery. The fundus remained firm and in normal position. Bleeding was within normal limits. The patient was returned to her room in apparently good condition."

It should be noted that in this case the placenta delivered spontaneously fifteen minutes following the delivery of the infant who weighed five pounds seven ounces. This patient was given 15 hundred cc's of parenteral fluids; however, no blood was used. She was also placed on prophylactic antibiotic therapy during her hospital stay. She was discharged from the hospital on her fourth hospital day. The puerperium was entirely normal. She has been seen at yearly intervals since, has always had a normal pelvic examination, and has had no subsequent pregnancies.

Discussion

Uterine inversion, fortunately, is an uncommon occurrence. It is usually a complication of the third stage of labor, perhaps the only exception being its occasional occurrence in the presence of a polypoid uterine tumor. This tumor related inversion situation is extremely rare and this discussion will be confined to the type of inversion that is seen in the third stage of labor.

The reported incidence varies tremendously. The Vienna Lying-In Hospital reported an incidence of one case per 280,000 deliveries. A more recent review of 297 cases of uterine inversion showed the incidence in American hospitals was one in 23,127 deliveries, and in British hospitals one in 27,992 deliveries. The mortality rate has been listed from 20 to 25 per cent. Etiologic factors also seem varied. The following things have been involved in some reports. Too strenous, traction on the cord, a short umbilical cord, adherent placenta, precipitate delivery, patulous cervix and uterine atony. In the review of 297 cases by Das, 40 per cent were cited as being entirely spontaneous, 20 per cent due to excessive manual massage of the uterine fundus. There seems to be some difference of opinion concerning recurrence. Greenhill states that the uterus rarely reinverts immediately after replacement but that there is a 44 per cent recurrence in women who have previously had a manual replacement of an inverted uterus. In contrast, Reid reports that there need be no special concern about reinversion of the uterus either immediately after its replacement or in subsequent pregnancies. The cases here reported would certainly indicate that an adherent placenta is an important factor and also that a recurrence of inversion of the uterus might be something to watchfully anticipate.

There are three classes of uterine inversion: the acute, which is prior to cervical ring contraction; the subacute, which is immediately thereafter; and the chronic, which is a neglected case and may persist for months or years following the original inversion. Uterine inversion can be complete or incomplete. In the incomplete variety the uterine fundus has not inverted beyond the cervical ring. In the complete variety the uterine fundus has passed the cervical ring in its inverted position.

The symptoms of uterine inversion are limited to those of a shock like state which is not necessarily related to blood loss. By most writers it is felt that this is due to traction on the peritoneum as the uterus inverts. The diagnosis is confirmed by inspection of the vaginal content which, if the uterus is inverting completely, the fundus of the uterus with its decidual surface will be seen either in the vagina or actually presenting through the introitus. Abdominal palpation in the incomplete variety will reveal a dimpling of the uterine fundus, and in the complete variety the uterine fundus cannot be felt abdominally.

Treatment of this condition should involve a twofold simultaneous approach, namely, to reposition the uterus as quickly as possible and to treat the state of shock the patient is in. The patient's general condition usually improves immediately upon reposition of the uterus. Some writers state that the adherent placenta should be left attached until the uterus is repositioned. Others state that the placenta should be separated first and then the uterus repositioned. This latter approach would seem to be more reasonable, because if the adherent placenta is an etiologic factor in producing the inversion it would not make sense to return the uterus with the placenta still attached. Those who have felt it should be left attached did so because they felt it served as a blood loss control mechanism as a tamponade. In both of these cases the attached placenta was removed prior to replacement of the uterus. The actual repositioning of the organ in the acute situation is a manual procedure. The fingers of one hand endeavor to spread and dilate the cervical ring while the palm of that hand or the fingers of the other hand endeavor to reposition the inverted fundus by a milking action. It is important that this not be done so strenuously as to perforate the thinned uterine wall. The necessity for anesthesia to invert the uterus depends upon how immediately available it is and how quickly the uterus is replaced to its normal position following inversion. The literature describes cases in which manual reduction of the inversion from below was unsuccessful. In these instances an abdominal reduction has been required with tenacular or Allis forceps traction upon the inverted fundus and sometimes it even being necessary to incise the posterior cervical ring so that the body of the uterus could be repositioned through the cervix.

Some historical notes are of interest. As early as 1856 Dr. James White successfully reduced by manual manipulation from below an inverted uterus present for eight days. In 1868, Dr. T. Addis Emmet used silver sutures to close the external cervical os in an effort to retain the reposition of an inverted uterus. One operator even used an elastic ligature placed about the inverted uterine mass which caused it to be docked like the tail of a lamb. In the more ancient literature also various gadgets, such as long stemmed pessaries, worn with elastic belts are described in an effort to reposition a chronically inverted uterus. However, the more common approach to the chronic inversion is an operative one such as the elsewhere described Spinelli or Haultain procedures.

Summary

Inversion of the uterus is a statistically rare condition which most of us will never see. I had every reason to think I would be immune from this traumatic experience, but there is evidently no protection of this sort by practicing medicine in a small town in Wyoming. The first case took me completely by surprise and the resolution of the problem was somewhat slower. The second case, because of the previous history and my earlier experience was less of a surprise though just as worrisome. Because of the earlier experience, particularly in the second case, there were absolutely no contributions on my part to this recurrence of inversion

of the uterus, and yet it did occur. There is no question that the more prompt replacement of the uterus which occurred in the second case greatly reduced the trauma to the patient and those in attendance. Fortunately previous experience is a background that will be denied most of those who will be called upon to deal with uterine inversion. •

REFERENCES

1. Mann, Matthew, D., M.D.: A System of Gynecology. Lea Bros. & Co., 1887.
2. Crossen, Harry S.: Diseases of Women. C. V. Mosby, 1907.
3. Reid, Duncan E., M.D.: Textbook of Obstetrics. W. B. Saunders, 1962.
4. Titus, Paul, and Willson, J. Robert: Management of Obstetric Difficulties. C. V. Mosby, 1955.
5. McCormick, Charles O., M.D.: Pathology of Labor, the Puerperium and the Newborn. C. V. Mosby, 1966.
6. Curtis, Arthur Hale: Textbook of Gynecology. W. B. Saunders, 1946.
7. Hull, Clifford, and Cimbrough, Robert A.: Clinical Obstetrics. J. B. Lippincott, 1953.
8. Greenhill, J. P.: Principles and Practice of Obstetrics. W. B. Saunders, 1951.

The missing intrauterine device in pregnancy

Colin Bailey, MD, Gillette, Wyoming

IT IS NOW ESTIMATED that there are over three million intra-uterine devices in use. Although pregnancy rate is reportedly small with the common types of I.U.D.s,[1] the actual management of the patient who gets pregnant while her device is in place is obviously of some concern to her and the family. This case presentation illustrates some of the problems that may be encountered in such an instance.

CASE REPORT

A white female, age 27, gravida III, para II, abortions 0, was seen for the first time on the 17th of November, 1970, because of spotting the previous night and pain in the right lower abdomen. Her last menstrual period was the 14th of April 1970, giving her estimated date of confinement the 21st of January 1971. She was obviously pregnant. She stated that she had had an I.U.D. inserted in February 1970 and had requested its removal in March and April because of heavy menstruation and cramping. This problem was temperized with hormone shots and reassurance by her physician, who had inserted the device. She had no further difficulty until July when she bled for six days which she thought was moderate normal menstrual bleeding. She believes that she lost the I.U.D. at that time, but it was never found.

The patient was admitted to the hospital on November 13, 1970 with a provisional diagnosis of abruptio placenta and possible I.U.D. in the uterine cavity. X-ray of the abdomen was interpreted to show "fetal skeleton is noted in cephalic presentation with the fetal spine to the maternal right. Radiopaque intrauterine device is noted adjacent to the fetal lumbar spine. No significant fetal or maternal abnormalities are noted. Fetal age is not evident with certainty but the talus and calcaneous appear to be present in the feet indicating approximately 30 weeks gestation." (Fig. 1.)

The patient was treated with bedrest, analgesics and I.V. infusion of five per cent alcohol in five per cent Dextrose at a rate of 125 cc per hour. She responded well to conservative treatment with no further bleeding and no further pain, and was discharged on November 16.

The remainder of the prenatal course was uneventful until the patient went into spontaneous labor on the 31st of December and was admitted at 2:35 a.m. that morning. At 4:00 a.m. she was noted to be in established labor and labor was progressing satisfactorily with no excessive vaginal bleeding and no uterine pain or tenderness. Fetal heart tone remained normal and stable throughout the labor. In view of the normal progression of the premature labor it was decided to allow vaginal delivery, and she was delivered of

Fig. 1. Roentgenogram of the Abdomen Showing Radio-Opaque Intrauterine Device.

a female infant at 8:04 a.m. on the 31st of December. It was a healthy 4 lb. 14 oz. premature female. Manual removal of the placenta was undertaken and the placenta showed an imbedded Saf-T-Coil. (Fig. 2.) There was no post-partum bleeding. The uterus clamped down in the usual fashion and manual exploration of the uterine cavity revealed no lacerations and no gross abnormalities.

Post-partum the mother did extremely well. The baby, however, had some respiratory problems due to its prematurity with possible mild atelectasis to the left lung. The infant responded well to routine isolette management and on January 18 weighed 5 lbs. 12½ ozs. On January 25 weight had increased to 6½ lbs. During the post-partum period the mother, as she had requested, underwent an elective sterilization procedure.

Discussion

This case emphasizes several points. The patient did not know, or said she did not remember, the type of I.U.D. that she had had inserted. It seems apparent that every patient should be told and shown the type of device that she has inserted. Also, the patient should be advised to have a check-up if she thinks that she has lost the I.U.D. A flatplate of the abdomen will usually determine if the I.U.D. is in place in the uterine cavity or indeed in the pelvic cavity.

The question arises as to what to do about this undesirable pregnancy since the I.U.D. is obviously used to prevent such an occurence. When the woman wishes to terminate

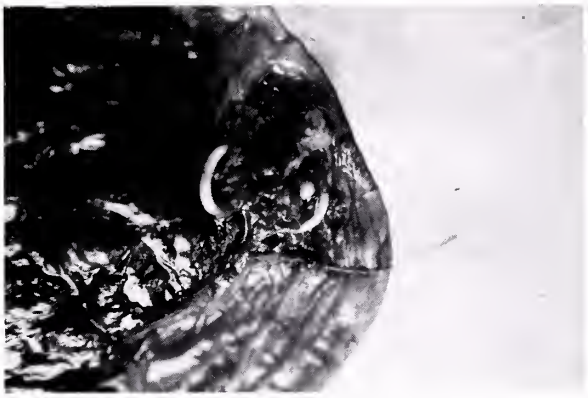


Fig. 2. Placenta With Embedded Intrauterine Device.

the pregnancy and abortion of such a pregnancy is legal, the patient should possibly have an abortion by dilatation and curettage or aspiration curettage before 12 weeks.[2] At the present time it is not legal to offer such a patient an abortion in Wyoming and therefore the decision has to be made as to whether the patient should be sent out of state. However, by the time I saw this patient she was at 30 weeks which would necessitate hysterotomy on a viable infant. Fortunately the moral question was resolved here—the mother decided to accept the pregnancy. After the arrival of the infant, two daughters age 9 and 7 years, and the husband fully accepted the child as one of their own family, as would be expected.

Many centers do not remove the device in the presence of pregnancy even when the threads are visible. Even if the device is removed it is not necessarily followed by spontaneous abortion. "However, spontaneous abortion rate for pregnancies which occur with the device in situ is considerably higher than the national average for all pregnancies, about 15 per cent."[3] It has been stated[4] that the presence of an I.U.D. sometimes interferes with the normal course of a pregnancy and that removal of the device improves the chances of a live birth.

It is interesting that review of the literature[5-12] shows that the mode of action of the I.U.D. and how it prevents pregnancy in utero is still unknown. Presently, the most commonly accepted hypothesis is that the I.U.D. provokes a leukocytic mobilization which affects the survival of the blastocyst or acts on the endometrium to prevent to

render it unsuitable for nidation. Studies reported by Chang and Tatum[13] would indicate that at least for the rat, this is the mode of action. Aber, et al.,[14] speculate that the effect in the human is similar. Davis and Lesinski[15] add that this physiologic reaction seems to be directly related also to the size and composition of the device, a conclusion also reached by El Sahwi and Moyer.[16] Since there are now over 35 types of devices, and at least four are on trial with metallic copper, it is obvious that further study will elucidate the mode of action of the I.U.D.

Conclusion

"Nearly a decade of experience with the I.U.D. in dozens of countries and millions of women has demonstrated that this is a highly effective and valuable method of contraception."[17] This case, however, is an exception and shows that the I.U.D. is not flawless. However, with the present new devices such as the Shield and Copper T and copper impregnated Lippes Loop, lower pregnancy rates will be the future trend. •

REFERENCES

[1] Tietze, C.: Evaluation of Intrauterine Devices: Ninth Progress Report of the Cooperative Statistical Program. Studies in Family Planning, No. 55, July 1970, p. 1.

[2] Sobrero, Aquiles J., M.D.: Intrauterine Devices in Clinical Practice. Perspective, Volume 3, Planned Parenthood Federation of America, Inc., 1971, page 21.

[3] Lewit, S.: Outcome of Pregnancy with Intrauterine Devices. Contraception, 2:47, 1970.

[4] Lewit, S.: Outcome of Pregnancy with Intrauterine Devices. Contraception, 2:47, 1970.

[5] Greenwald, G. S.: Interruption of Pregnancy in the Rat by a Uterine Suture. Journal of Reproductive Fertility, 9:9, 1965.

[6] Jessen, D. A., Lane, R. E., and Greene, R. R.: Intrauterine Foreign Body: A Clinical and Histopathologic Study on the Use of the Graefenberg Ring. Am. J. of Obs. and Gyn., 85:1023, 1963.

[7] Sagiroglu N., and Sagiroglu, E.: Biologic Mode of Action of the Lippes Loop in Intrauterine Contraception. Am. J. of Obs. and Gyn., 106:506, 1970.

[8] Lippes, J., and Ogra, S. S.: Comparative Study of Loops and Orals in A. J. Sobrero and S. Lewit, eds. Advances in Planned Parenthood, Vol. IV, Excerpta Medica Foundation, New York, 1969.

[9] Marston, J. H., and Kelly, W. A.: The Time and Site of Contraceptive Action of the Intrauterine Device in the Mouse. J. of Endocrin., 43:83, 1969.

[10] Ibid.: The Effect of Uterine Anastomosis on the Action of an Intrauterine Device in the Rat. J. of Endocrin., 43:95, 1969.

[11] Ibid., and Eckstein, P.: Effect of an Intrauterine Device on Gamete Transport and Fertilization in the Rhesus Monkey. Journal of Reproductive Fertility, 19:149, 1969.

[12] Parr, E. L., Schaedler, R. W., and Hirsch, N. G.: The Relationship of Polymorphonuclear Leukocytes to Infertility in Uteri Containing Foreign Bodies. J. of Exper. Med., 126:523, 1967.

[13] Chang, C. C., and Tatum, H. J.: A Study of the Antifertility Effect of Intrauterine Copper. Contraception, 1:265, 1970.

[14] Ober, W. B., Sobrero, A. J., and Chabon, A. B.: Endometrial Findings Following Insertion of a Stainless Steel Spring as an Intrauterine Contraceptive Device. Obstetrics and Gynecology (in press).

[15] Davis, H. J., and Lesinski, J.: Mechanism of Action of Intrauterine Contraceptives in Women. Obstetrics and Gynecology, 36:350, 1970.

[16] El Shawi, S., and Moyer, D. L.: Antifertility Effects of the Intrauterine Foreign Body. Contraception, 2:1, 1970.

[17] Sobrero, Aquiles J., M.D.: Intrauterine Devices in Clinical Practice. Perspectives, Volume 3, Planned Parenthood Federation of America, Inc., 1971, page 23.

You Can Order Reprints

of any feature article or advertisement appearing in The Rocky Mountain Medical Journal.

Orders must be placed within 15 days after date of publication. Minimum charge applies for 100 copies or less.

The cost is very reasonable. For further information write to—

The Rocky Mountain Medical Journal

1809 East 18th Avenue
Denver, Colorado 80218

The girth control pill

Tepanil® Ten-tab®

(continuous release form)

(diethylpropion hydrochloride, N.F.)

When girth gets out of control, TEPANIL can provide sound support for the weight control program you recommend. TEPANIL reduces the appetite—patients enjoy food but eat less. Weight loss is significant—gradual—yet there is a relatively low incidence of CNS stimulation.

Contraindications: Concurrently with MAO inhibitors, in patients hypersensitive to this drug; in emotionally unstable patients susceptible to drug abuse.

Warning: Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

Adverse Reactions: Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence. As is characteristic of sympathomimetic agents, it may occasionally cause CNS effects such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported. Sympathomimetic cardiovascular effects reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others. Allergic phenomena reported include such conditions as rash, urticaria, ecchymosis, and erythema. Gastrointestinal effects such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosage forms: TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL: One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

T-107/4/71/U S PATENT NO 3,001,910

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Painful night leg cramps...

unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

One thing patients can sleep without, particularly patients with chronic disease conditions such as arthritis, diabetes or PVD, is painful night leg cramps. Although seldom the presenting complaint, night leg cramps can tie your patients up in painful knots. Now, just one tablet of QUINAMM at bedtime can usually bring an end to shattered sleep and needless suffering. Your patients will sleep restfully—gratefully—with QUINAMM, specific therapy to prevent painful night leg cramps.

Prescribing Infarmatian—Compasition: Each white, beveled, compressed tablet cantains: Quinine sulfate, 260 mg., Aminaphylline, 195 mg. **Indicatians:** Far the prevention and treatment af nacturnal and recumbency leg muscle cramps, including those associated with arthritis, diabetes, varicase veins, thrambaphlebitis, arteriasclerasis and static faat defarmities. **Contraindications:** QUINAMM is contraindicated In pregnancy because af its quinine content. **Precautians/Adverse Reactians:** Aminophylline may produce intestinal cramps In same instances, and quinine may praduce symptams of cinchanism, such as tinnitus, dizziness, and gastraintestinal disturbance. Discantinue use if ringing in the ears, deafness, skin rash, ar visual disturbances accur. **Dosage:** One tablet upan retiring. Where necessary, dasage may be increased ta ane tablet fallawing the evening meal and ane tablet upan retiring. **Supplied:** Bottles of 100 and 500 tablets.

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Quinamm™ Specific therapy for night leg cramps

(quinine sulfate 260 mg., aminaphylline 195 mg.)

Hemangiomas of the esophagus

Richard W. Loughry, MD, Cheyenne, Wyoming

Hemangiomas of the gastrointestinal tract are reviewed briefly. A case of a pedunculated extraluminal esophageal hemangioma is presented, and a review of these rare esophageal lesions is given.

HEMANGIOMAS MAY BE scattered throughout the body in any organ or tissue. All of us have seen hemangiomas of the skin. Hepatic cavernous hemangiomas are also quite common, being the most frequent benign neoplasm to occur in that organ. Occasionally the tongue and lips are involved, as in Weber-Osler-Rendu disease, characterized by multiple telangiectasia of the face, lips, and mucous membranes, occurring in certain families. These cutaneous hemangiomas are associated with angiomata throughout the gastrointestinal tract, and are one of the causes of occult gastrointestinal bleeding. Risser,[6] in a recent review, stated that there are over 175 reported families with more than 1,000 members with this disease.

Intestinal Hemangiomas

Intestinal hemangiomas, however, are extremely rare lesions. Gentry, Dockerty, and Clagett[3] reviewing 1,400,000 case records at the Mayo Clinic in 1949 reported 106 vascular tumors (of all kinds) of the intestines. Several authors in large series state that hemangiomas represent the fourth most common benign tumor of the intestinal tract, following adenomas, myomas, and fibromas. Hemangiomas represent approximately 7-10 per cent of all benign small intestinal tumors. Standard textbooks of pathology usually mention only the oral cavity as the intestinal sites of these tumors.

Several classifications of intestinal vascular lesions are available. A practical one in terms of treatment is that of Gentry[3] who separates them into benign and malignant groups, as in Table 1. No matter what classification is used, however, these uncommon lesions must be studied individually and treated accordingly.

The etiology of hemangiomas is open to dispute. Anderson[1] states that they are probably congenital in origin. Patellani[4] finds support for this mechanism in that most hemangiomas in the intestinal tract occur in the submucosa, which is where the earliest vessels form embryologically. Other authors feel, however, that they represent true neoplasms, and that they are not merely congenital anomalies.

In an excellent review of "Hemangiomas of the Intestinal Tract," in 1960 by Rissier[6] 114 cases were analyzed. That author had two of his own to contribute. There were 63 males and 51 females, showing no significant sex differentiation. Patients ranged in age from three months to 83 years and were again, evenly distributed throughout their life-span. Sixteen of the 114 cases had no symptoms, the hemangiomas being discovered at autopsy or at operation as incidental findings. Of the patients who were symptomatic, of which there were 96, 89 of these presented with either gastrointestinal bleeding or anemia. Therefore, it is evident that bleeding was by far the most common presenting finding. Of the 49 cases with exact information as to length of symptoms, the average duration was 12.3 years, ranging from four weeks to 40 years. Intestinal obstruction, abdominal pain or discomfort, vomiting, diarrhea, or a palpable mass were extremely infrequent initial findings.

Of the 114 patients which Rissier[6] reviewed, 37 had single tumors, and 73 patients showed multiple or diffuse lesions. Thirty of these were cavernous, five capillary, 11 mixed, 8 telangiectitic, and six were thought to be phlebectasia. The most common sites reported were the small intestine and the colon.

CASE REPORT

This 25-year-old white female was noted by a friend to have a thyroid enlargement six months before she presented for examination. The mass was asymptomatic, and the patient did not think that it had increased in size during that interval. She denied any symptoms of thyroid disease or tracheal irritation. She did note that at times she experienced some difficulty swallowing a large bolus of meat. Prior to the age of 11, she was frequently hospitalized for asthma. She had never been told of any neck mass as a child, however. On physical examination, she was a slender, white female who appeared healthy. The only positive finding was in her neck. The left lobe of the thyroid felt entirely normal. The right lobe of the thyroid was thought to be 3-4 times enlarged, and it contained two fairly discrete nodules, each measuring about 2½ cm. in diameter, in what was thought to be the upper and lower poles. There was no bruit. The masses moved up and down with swallowing. No cervical adenopathy was palpable. A T-4 and PBI were within normal limits. An I-131 Uptake was normal at 21 per cent. The scan was interpreted as showing active large nodules on the right side. A chest X-ray showed slight deviation of the trachea above the thoracic inlet to the left.

Pre-operative diagnosis was nodularity in the right lobe of thyroid, possibly multiple adenomas or multinodular goiter. At operation, however, the thyroid gland was found to be completely normal in size and configuration. The mass in question proved to be posterior to the right lobe, and to extend superiorly up to the level of the hyoid bone and inferiorly to one cm. below the lower pole of the thyroid. The recurrent nerve was greatly elevated and displaced anteriorly by the mass. No gross lymphadenopathy was present. The tumor appeared to be encapsulated and had a dark bluish color. It was dissected up from its inferior pole, and it became apparent as it was rotated anteriorly, that it was densely adherent to the wall of the esophagus. The superior thyroid vessels on the right were divided. It was seen to arise from a pedicle going into the substance of the esophagus. There was also an extension of the tumor mass dissecting down the posterior wall of the esophagus, passing deep to the inferior pharyngeal constrictor muscles. These were divided, and this portion of the tumor was carefully dissected up off the posterior wall of the esophagus, where it lay directly beneath the mucosa. It was finally seen that the tumor originated from an area 1 cm. x 1½ cm. in the posterior wall of the esophageal mucosa at the level of the cricopharyngeus. The mucosa was incised, and a segment of the mucosa directly overlying the tumor was removed in an elliptical fashion. The esophageal mucosa was closed, and the musculature which had been incised was reconstructed. The patient's postoperative course was uneventful.

The resected specimen measured 6 cm. in maximum dimension, and the cut surface revealed a spongy, finely trabeculated central portion which exuded large amounts of blood. Microscopically, it proved to be a cavernous hemangioma with small accumulations of lymphoid tissue in the stroma.

Hemangiomas of the Esophagus

It appears that the esophagus is the *most uncommon* site of involvement for vascular tumors in the entire G.I. tract. In two series totalling 13,460 autopsies, only three esophageal hemangiomas were found.[2] Gentry,[3] reporting 106 cases of vascular tumors of gastrointestinal origin seen at the Mayo Clinic, had only nine cases with esophageal involvement. Rissier[6] reports four of 114 cases showing esophageal lesions. Of Gentry's[3] nine cases, one was a mixed capillary and cavernous, six were multiple cavernous, one was a simple polypoid, and one a hemangioendothelioma. Seven of these were found at autopsy. Of the three with symptoms, all died in one year. Three of Rissier's[6] four cases were of the multiple telangiectasis type. One was at the junction of the esophagus and stomach.

In addition to the cases mentioned above, the author has been able to find only three more case reports of hemangiomas of the esophagus. These are all reported in the foreign literature. In a case reported by

TABLE 1

Benign Vascular Lesions
- Telangiectasis (hereditary and non-hereditary types)
- Hemangioma
  - Capillary hemangiomas (simplex — mostly single)
  - Mixed capillary and cavernous
  - Cavernous
    - Multiple phlebectasis (small cavernous)
    - Simple polypoid (single cavernous)
    - Diffuse expansive (single contiguous)
    - Diffuse expansive (non-contiguous)

Malignant Vascular Lesions
- Hemangioendothelioma
- "Benign metastasizing hemangioma"
- Angiosarcoma

Weischselbaumer[7] in 1967, a 60-year-old man had been symptomatic for ten years. He developed esophageal obstruction, and finally, could only take liquids. He had intermittent symptoms of suffocation, and at times a mass was palpable in the piriform sinus area. At operation a cavernous hemangioma on a long pedicle attached to the posterior wall of the cervical esophagus was found and removed. It would intermittently obstruct the trachea, and he was able to relieve this by pressure on the tumor with his finger.

Piaget[5] from France, reported a case in 1968 very similar to this. This occurred in a 70-year-old woman who had progressive dysphagia, and a barium swallow revealed a tumor of the cervical esophagus. Esophagoscopy was performed with biopsy of a large bluish tumor, but the exact pathologic diagnosis was not made. She was operated through a cervical incision similar to one used for a Zenker's diverticulum, and a large hemangioma on a pedicle which was projecting into the lumen of the esophagus was found and successfully removed.

The author has been unable to find any case reports of a polypoid hemangioma of the cervical esophagus of the size of the present case and which grew outward as in this patient, rather than projecting into the lumen.

In contrast to hemangiomas elsewhere in the G.I. tract which usually cause symptoms by bleeding, esophageal lesions more commonly present with obstructive symptoms, of either the esophagus or trachea. Regurgitation, pain in the thorax, and hemetemesis may also occur.

Treatment of these lesions varies with the type of involvement. Large, diffuse expansive lesions, or multiple telangiectasis, are observed only. If surgical extirpation is feasible, either via the neck or thorax, it should be done. Small lesions projecting into the lumen on a stalk might be removed via the esophagoscope using a snare. Radiation therapy, using rotation technics or multiple ports, has been tried, but not too successfully, causing necrosis and hemorrhage, or stricture, in some cases. The proper treatment is usually suggested by the lesion itself. •

REFERENCES

1 Anderson, W. A. D.: C. V. Mosby Co., St. Louis, 1957. p. 539.
2 Boyd, D. P., and Hill, L. D., III: Benign Tumors of the Esophagus. Ann. Surg., 139:312, 1954.
3 Gentry, R. W., Dockerty, M. B., and Clagett, O. T.: Vascular Malformations and Vascular Tumors of the Gastro-intestinal Tract. Internat. Abst. of Surg., 88:281, 1949.
4 Patellani, E.: I Tumor Vascolari Del Digiuno. Osped. Maggiore., 43:515, 1955.
5 Piaget, F., Gros, J. C., and Lavillauroy-Dufour, C. J.: Tumeur Angiomateuse Intra-Murale et Pédiculée Du Tiers Supérieur de L'Oesophage. Ann. Oto-Laryng. (Paris) 85:229, 1968.
6 Rissier, H. L., Jr.: Hemangiomatosis of the Intestine. Gastroenterologia, 93:357, 1960.
7 Weichselbaumer, Von W.: Haemangioma Cavernosum in Ösophagus. Mschr. Ohrenheilk, 102:333, 1968.

Hansen's disease in a peripheral nerve

Claude O. Grizzle, MD, Cheyenne, Wyoming

This paper reviews the presenting symptoms, pathologic findings, and modes of treatment of lepromatous neuropathy.

OCCASIONALLY, ONE ENCOUNTERS an unusual disease condition in Wyoming. The following case presentation is not unusual for parts of the tropical World, but is of interest and worthy of note since it was detected in the Rocky Mountain Area. Furthermore, since there is a fairly active foreign student exchange program the occurrence of this case should alert us to the possibility that others may be encountered.

CASE REPORT

A 21-year-old recently married female exchange student at the University of Wyoming was referred for neurologic evaluation on March 12, 1969. She was born to an upper class family and raised in Southern India. She had been well through her infancy to adulthood without febrile illnesses nor tuberculosis, and her nutrition had been good. Her presenting complaint was numbness and weakness of the fourth and fifth fingers of the left hand for the previous six weeks. She also had some dull pain above her left elbow and was aware of a sensitive enlargement on the inner aspect of the left upper arm. She stated that pressure applied to the "lump" caused an "electric shock" to run down the inner side of her forearm into the fourth and fifth fingers. She had no other complaints and no apparent exposure to persons with chronic disease.

On examination she was right handed and neurologically normal, except for the left upper extremity. There were no skin lesions. A 2 x 3 cm nodular mass was palpable above the elbow, clinically attached to the ulnar nerve. She had anesthesia, weakness and atrophy in the distribution of the left ulnar nerve and the intrinsic muscles supplied by this nerve including the interossei and flexor carpi ulnaris. Palpation of other peripheral nerves did not reveal other lesions.

Her laboratory work-up revealed normal urinalysis, 13.8 grms Hgb with 39 Vol per cent Hct, 16,000 Wbc with 6 eosinophiles, 49 segs, 38 lymphocytes and seven monocytes. She had a nonreactive VDRL, a negative Tuberculin skin test and a positive pregnancy test. X-rays of her chest and left elbow were normal.

Because we could not be certain that she did not have a primary peripheral nerve tumor, the left ulnar nerve was explored April 3, 1969. At the area of involvement it was gray, enlarged and nodular. It was two cm at its widest point and tapered over a distance of 19 cm distally and proximally until the enlargement blended with normal appearing nerve. Upon stimulation, delayed conduction time was observed. At one point a yellow grumous nodule had broken through the perineurium. A longitudinal incision was made in the perineurium. (Figure 1.) Caseous and necrotic material exuded from this opening, Specimens for biopsy were taken. Inasmuch as some nerve fibers were noted to course through the mass, only a subtotal removal of the mass was accomplished. Frozen sections revealed inflammatory tissue. Tumor cells were not observed. The incision was closed and healed per primum.

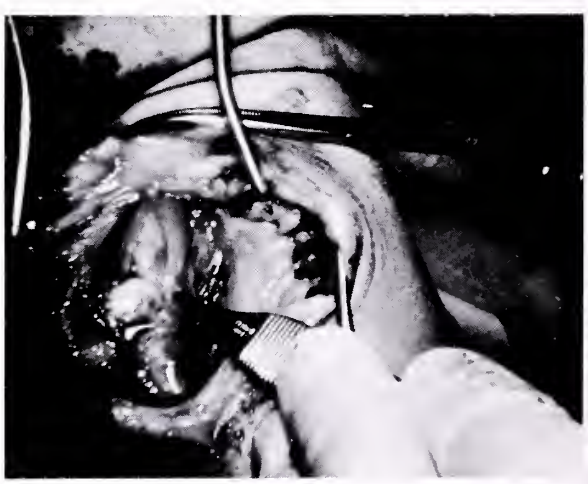


Fig. 1. Left ulnar nerve exposed above elbow, showing granulomatous lesion exuding through perineural sheath.

The frozen and permanent sections of the mass revealed large foam cells with marginal necrosis, as well as inflammatory cells predominately plasma cells and neutrophiles. Biopsy tissue from surrounding connective tissue disclosed considerable inflammatory infiltrate and capillary dilatation. Multiple staining technics were used to study this material, but all were negative for acid fast baccilli, fungus or other organisms. The pathologists concluded that tuberculoid leprosy was a strong possibility.

Discussion and Treatment

The following comments will pertain to leprosy or Hansen's disease as it involves peripheral nerves. In Southern India, the disease was reported in 1962 to be on the increase, particularly among young students. The sites of peripheral nerve involvement are high ulnar and low median nerve in the upper extremity and lateral popliteal involvement in the lower extremity. A vascular mechanism has been postulated as the probable cause of the paralysis when these nerves are afflicted. The lepromatous type is characterized by a fairly well circumscribed, discrete focus of granulomatous inflammation of large mononuclear phagocytic cells in which the cytoplasm seems finely vacuolated (foam cells). The tuberculoid form is a benign stable lesion which is usually bacteriologically negative. The lepromin test may or may not be positive. A lepromin test was not done in this case, because a fresh antigen was not readily available. A helpful histologic differential feature is the predominance of lymphocytic infiltration at the periphery of the caseating granuloma and involvement of the perineurium in the same granulomatous process with resulting gross thickening and fibrosis of the perineurium, to distinguish the lesion from caseating tuberculosis. These features were present in this case.

Regarding information about treatment, I am indebted to Drs. A. B. A. Karat and Jacob Chandy of the Christian Medical College, Vellore and S. L. Research Sanatorium, Karigiri, India. In general, lepromatous peripheral neuropathy of this type is said to have a favorable prognosis in terms of recovery from the disease, although the prognosis for the ulnar nerve is extremely poor. If there is electromyographic indication of residual motor activity, a 12-week course of steroid therapy is worth a trial. The recommended initial dosage is 40 mg daily in divided doses with reduction by five mg a day every two weeks. When the steroid dosage is down to 15 mg. per day, then Diamino-diphenyl sulphone (Dapsone-Wyeth) is introduced. Initially, five mg daily is used with increase by five mg daily every four weeks until a maximum of 50 mg a day is reached. In addition, Folic acid five mg three times a day and Vitamin B_{12} 100 mgs parenterally every four weeks has been found of value in some patients with this condition. The course of treatment should be followed by both manual muscle testing and sensory determinations using a fine nylon filament to elicit tactile sensibility. If there is to be any improvement, one is likely to see it within 16 to 24 weeks after initiation of treatment. Additional treatment considerations include the use of gutter splints for those fingers which demonstrate flexion deformity due to intrinsic paralysis to prevent progression of flexion contracture and later reconstructive plastic surgical measures.

The patient presented in this report was found to be pregnant several weeks after

You Can Order

REPRINTS

of any feature or advertisement appearing in

The Rocky Mountain Medical Journal.

Orders must be placed within 15 days after date of publication. Minimum charge applies for 100 copies or less.

The cost is very reasonable.

For further information write to—

The Rocky Mountain Medical Journal

1809 East 18th Avenue

Denver, Colorado 80218

the nature of her lesion was determined. Because of her pregnancy, drug therapy was withheld, because of the toxicity of some of the agents, particularly, diaminodiphenyl sulfone, which is the most widely used compound in the treatment of Hansen's disease. It is inexpensive, well absorbed when taken orally and is secreted slowly. Unfortunately, it is slow acting and has serious toxic effects. It is excreted in the urine, probably as a monoconjugate with glucuronic acid, and this metabolite may be responsible for its antileprus activity. Within two months after the diagnosis was established, she moved to Colorado. Continuity of follow-up information was forwarded to her attending physicians. Following delivery of a viable normal infant and cessation of nursing, treatment was begun. She received 50 mg. twice weekly along with Vitamin B_{12} 100 mg monthly, 50 mg tid and Folic acid. After six weeks her Dapsone was increased to 100 mg twice weekly. Subsequently, she has been followed at the Neurological Clinic at the Colorado General Hospital. Nerve conduction studies revealed a block in ulnar nerve function at the region of the elbow. Subsequent follow-up conduction velocity studies have not revealed improvement with treatment.

Summary

A 21-year-old married female from Southern India is presented with a tuberculoid granulomatous lesion of the left ulnar nerve. The circumstances of her place of birth and residence, gross findings and histological studies are compatible with a diagnosis of focal Hansen's disease of the ulnar nerve. General features of lepromatous involvement of peripheral nerves and treatment measures have been discussed. •

I am indebted to Drs. A. E. Klemme and J. W. Markey of the Boulder Medical Center, Boulder, Colorado and to Dr. J. Austin, Professor and Head of the Division of Neurology at the University of Colorado Medical Center for follow-up information.

Gastrointestinal malignant melanoma - -

A report of an unusual case

Richard H. MacLean, MD, Sheridan, Wyoming

THIS CASE REPORT is prompted by a recent paper by Willbanks and Fogelman[1] in the November, 1970, issue of American Journal of Surgery dealing with gastrointestinal melanosarcoma. The authors reviewed the literature and note that less than forty cases have been reported as occurring during the clinical course of the disease, although the yield from postmortem studies is somewhat higher. They reported eighteen cases of melanoma involving the small and large intestine, along with the typical clinical and roentgenological findings, results of surgery and combined therapy, and eventual courses. Their data indicated that intestinal melanosarcoma may occur in two distinct clinicopathologic types. More commonly, melanoma presents as intestinal obstruction due to intussusception of multiple amelanotic, polypoid sub-mucosal and mucosal metastatic lesions. Less commonly, it presents as a solitary infiltrative melanotic lesion with hemorrhage or obstruction, or simply with a vague and troublesome abdominal pain. The prognosis in this latter situation may be fairly good, although in the former rapid death in a few weeks may be anticipated. They recommend follow-up study of patients with cutaneous melanoma, including gastrointestinal studies at regular intervals and frequent studies of blood and stool in an effort to recognize intestinal metastases early.

CASE REPORT

A 68-year-old rancher was first seen August 30, 1967, complaining of a lesion of the left scapular region of two years duration. He stated that this was noted as a wart two years previously, but that there was "always a mole" in this location. The area was much traumatized and at the time of being first seen was tender. There was no itching or bleeding. Past history included appendectomy, tumors of the bladder, fifteen and four years previously, type unspecified, and a coronary occlusion three years previously. The mother and father both died in their nineties. Inventory of systems and social history was essentially noncontributory except that the patient smoked the equivalent of two packages of cigarettes daily. Physical examination revealed a lean, middle-aged man with moderate kyphosis, not appearing acutely or chronically ill. He had upper dentures and a typical smoker's throat and early cataracts. There was a slightly increased A-P diameter of the chest and the breath sounds were moderately diminished. There was an occasional extra-systole. Abdominal examination revealed that the liver was barely palpable and there was a lower right rectus scar. Rectal examination revealed a moderately enlarged, slightly nodular prostate, and the hematest was one plus for occult blood. There was a varus deformity of one leg due to previous injury. Over the mid-scapular region there was noted a three centimeter area of erythema, in the center of which was an encrusted papilloma with surrounding areas of black to brown pigmentation measuring up to four millimeters. There was no lymphadenopathy.

The cutaneous lesion of the back was diagnosed as a probable malignant melanoma. The following day, under general anesthesia, the patient had a wide excision of the lesion and sliding full thickness graft. He failed to appear for his routine follow-ups and was next seen January 20, 1969, complaining of a tender lump in the right lower quadrant of the abdomen. There was no evidence of recurrence of the melanoma and no lymphadenopathy. There were no bowel changes, but there was some weakness and he had lost about twenty pounds since being previously seen. Physical examination was unchanged except that he was thinner and there was a twelve centimeter, slightly tender right lower quadrant mass under the old rectus scar of appendectomy. The patient was put on a bowel prep and a few days later a right hemicolectomy was performed for what appeared to be carcinoma of the hepatic flexure with metastases confined to the regional lymph nodes.

Histology report indicated malignant melanoma of bowel metastatic to the regional lymph nodes, seven of eleven being involved with tumor. The patient had a totally uneventful postoperative recovery and gained approximately five pounds when seen at his six weeks check-up. However, he entered another hospital June 20, 1969, with obvious hepatic metastases and died one week later.

Fig. 1. Malignant Melanoma of Left Scapular Area.

Fig. 2. Malignant Melanoma of the Hepatic Flexure of the Colon.

Summary

A case of malignant melanoma of the bowel, apparently metastatic from a previous skin melanoma, is presented to add one more case to the series of this apparently uncommon entity. It is suggested, since melanomas in the intestinal tract almost invariably bleed, that patients with a history of cutaneous melanomas have as a part of their routine follow-up a test for occult blood in the stool. •

REFERENCE

[1] Willbanks, Otto L., and Fogelman, Morris J.: American Journal of Surgery. 120:602, November 1970.

Psychopharmacology in the geriatric patient*

Margaret Reed, MD, Sheridan, Wyoming

We attempt to create a therapeutic social environment on our Geriatric Unit. In addition, we also depend on creating a chemical environment within the patient to make him more amenable to the social environment surrounding him. It is also noteworthy that each patient varies in his response to the various psychotropic drugs. One man's meat may indeed be another man's poison. Also, the aging organism is less resistant to stress which means that before giving any psychoactive substance to a geriatric patient, the therapeutic effect and possible adverse effects must be carefully considered.

We think of the aged as being physically less resistant to stress, but we should also consider lowered resistance of the psyche. With the generally failing ego flexibility of the elderly, there is a concomitant loss of facility in handling the psychological stresses. Things are made worse by the realistic recognition that functional capacity is threatened. This leads to conscious and unconscious feelings of insecurity. As a result elderly persons tend toward a narcissistic preoccupation with themselves. This is increasingly ineffective in elevating self-esteem unless there is an associated increase in divorcement from reality. *The psychodynamic factors in the intellectual and emotional malfunctions of the elderly must always be considered,* for they are of considerable importance in determining the degree of potential response to medical ministrations. This is true even in those persons with cerebral damage. The importance of dynamic factors can be appreciated if thought is given to what might happen if a healthy younger person were subjected to the same emotional stresses. No one would be surprised if a younger person had a severe emotional reaction to such occurrences as seeing many close associates die, a growing awareness of approaching death and recognition that many life-long goals were unattainable, particularly if in addition he had some degree of physical incapacitation from one or a combination of chronic diseases.[2,3]

*The author is Chief, Geriatric Unit, Veterans Administration Hospital, Fort McKenzie, Sheridan, Wyoming 82801.

Diagnosis is Important

In many discussions of psychopharmacology in the aged, the assumption usually is made that the concern of treatment is a disorder caused by impairment of brain tissue function, namely a chronic brain syndrome associated with cerebral arteriosclerosis or a chronic brain syndrome associated with senile brain disease. Actually, the chronic brain syndrome may not be the predominant incapacitating mental illness. This could be a functional psychotic disorder, a psychophysiological disorder, a psychoneurotic disorder or a marked personality disorder.

A Growing Need

I am sure that the problem geriatric patient will be seen more often, since the proportion of the aged population to the total population has doubled in the United States since 1900. With the growth of the aged population has come a corresponding growth in the range of mental health problems. The proportion of mental illness increases with age. The urgent need for active treatment in the age group of 60 and over was shown in a series of 200 consecutive cases of attempted suicides admitted to a general hospital; 20 per cent were in this age bracket (reported in a British Medical Journal, 1953).

The British Journal of Psychiatry in 1964 reported an estimate of the distribution of psychiatric disorders per 1,000 people 65 years of age and older, as follows:

	Institutional cases	Cases living at home
Senile and Arteriosclerotic Dementia	6.8	38.8
Other Severe Brain Syndromes	0.8	9.7
Manic-depressive Disorders	0.7	12.9
Schizophrenia, Chronic	0.2	9.7
Paraphrenia	0.9	0.0
Psychoses—All Forms	9.4	71.1
Brain Syndromes, Mild Forms	5.3	51.8
Neuroses	1.9	87.4
Character disorders	0.5	35.6
All Disorders	17.1	245.9

Classification of Drugs

The simplest classification of the current generation of psychopharmaceuticals is the division into two principal groups: 1. The psychoinhibitors, and 2. The psychoactivators. A subclassification under the psychoinhibitors is the ataractics group—neuroleptics or antipsychotic agents, the minor tranquilizers or antianxiety agents and the sedatives or hypnotics. The difference between the ataractics, the hypnosedative drugs and the antianxiety agents lies in the physiologic action of the drug in the C.N.S. and the established effectiveness of the antipsychotic action of the ataractics (for example, Thorazine). A subclassification under the psychoactivators is the antidepressant group of psychomotor stimulants.

Psychoinhibitors

Some of the ataractic drugs that we have found useful in the treatment of our disturbed elderly patients are as follows:

1. **Thorazine (chlorpromazine):** This is a useful drug in the more disturbed patient. It may be administered at intervals ranging from every four hours to twice a day in dosages ranging from 25 to 100 mgm if given orally. When given intramuscularly usually 25 mgm will suffice, although occasionally 50 mgm is required. Thorazine can produce extrapyramidal side effects but they can usually be controlled by Artane, Cogentin or Kemadrin. The many side effects are listed in the Physician's Desk Reference. This drug has quite a sedative effect and we use it more for this characteristic. It is good for those patients who are noisy, aggressive and restless. Because of its sedating quality it is not always good to continue it after the aggressive symptoms have been controlled. It is difficult to rehabilitate an overly-sedated patient, and one must consider the possibility of swollen legs due to immobility and pneumonia because of the shallow respirations. Thorazine is the drug of choice in the manic phase of the manic depressive psychosis. Recently lithium has been used for this illness; however, this drug is contraindicted in most geriatric patients because of physical disease.[2,5]

2. **Mellaril (thioridazine):** This has been an extremely useful drug. It has an advantage over other phenothiazines in that it does not so readily produce the extrapyramidal side effects. It does have a weaker antipsychotic effect and, therefore, cannot control the more disturbed patient as well. It can be combined with the antidepressants which is useful in treating the agitated depressed patient. Drs. Lehmann and Ban of Quebec, Canada, found in clinical trials that Mellaril was particularly effective for behavioral pathology seen in the elderly. This pathology includes such things as irritability, excitement, anxiety, hostility and dementia. They started with 75 mgm per 24 hours and did not usually have to go higher than 150 mgm per 24 hours.

I have found that Mellaril seems to enable confused patients to better organize their thinking with markedly improved communication ability. We utilize this drug most often in the patient with chronic brain syndrome. It tends to lessen the depression often seen in this syndrome. Quite confused and disoriented patients have improved to the point that they could participate in our group activities and were more cooperative with the nursing personnel. If the patient is quite depressed I add Tofranil, 75 mgm per 24 hours, or Vivactil, 10-20 mgm per 24 hours, to the regimen. A new drug closely related to Mellaril has recently appeared on the market. It is called Serentil. We have used it and found it not quite so potent as Mellaril but useful in the confused, not too disturbed patient. It also has a parenteral form available which is useful at times since Mellaril is not available in this form.[1,2,5,6]

3. **Stelazine (trifluoperazine):** This drug is useful in the elderly patient who is very paranoid in his delusional thinking. We keep the dose low since this drug is prone to produce extrapyramidal side effects. Usually two mgm b.i.d. will bring about the wanted behavioral change. Prolixin is a similar drug but secondary Parkinsonization is a problem, and I rarely use this drug. I have seen patients with these secondary effects having great difficulty swallowing which may lead to an occluded airway or a possible aspiration type pneumonia. Either one is most undesirable. Stelazine in combination with Thorazine has proven useful in the agitated depressed patient. Stelazine has the property of being an activator; therefore, it can be given in the morning and the Thorazine can be given p.m. for the agitation. The combination of drugs allows for a lower dose in both drugs. They seem to potentiate each other when they are given together.[5]

4. **Trilafon (perphenazine):** This is another phenothiazine that is useful when other drugs do not seem to work. It is a drug similar to Stelazine and Prolixin. Even though the structure of these drugs is similar, the slight difference seems to be enough for one drug to succeed in changing behavior when another has failed. Trilafon works well on aggressive, assaultive and paranoid symptoms. We find paranoid ideation is fairly common in our population of patients. A secondary benefit of increased sphincter control is often times noted. Thorazine is helpful in urinary incontinence, also. The dosage of Trilafon ranges from 8 to 48 mgm per 24 hours. Extrapyramidal symptoms are often a problem. Cogentin usually relieves these side effects.

5. **Haldol (haloperidol):** This drug is a nonphenothiazine antipsychotic agent useful in the disturbed geriatric patient. Its hypotensive effects are much less than the phenothiazines which can be important in the older person. If the dose is kept low (below 4 mgm per 24 hours) the extrapyramidal reactions are not a problem. I start the patient on 0.5 mgm b.i.d. and gradually increase the dose as needed. This drug can be utilized when the patient is allergic to the phenothiazines. Haldol may cause a depressive syndrome and therefore should not be used in the endogenous depressed person. Sometimes sleep disturbances develop with long term use of haloperidol. It is helpful in cases of paranoid ideation and hostile and aggressive behavior.[5]

6. **Atarax or Vistaril (hydroxizine):** This drug has given good results in senile agitation. It is especially useful if the patient has a concomitant cardiovascular problem, when the phenothiazines may be contraindicated. The dose ranges from 75 to 300 mgm per day. Its most outstanding feature is its ability to convert exaggerated responses to stress into normal ones. Hypotension and drowsiness may be bothersome side effects.[1]

7. **Quaalude:** We like this as a sedative because it seems to be effective without any problem of a "morning after" hangover. We have had very little increase of confusion with it. We usually give 300 mgm at bedtime.

8. **Benadryl:** This antihistamine is not classified as a hypnosedative, but its sedative side effect is useful. It has anti-Parkinson qualities and can be utilized in patients with Parkinson's disease who have problems with insomnia. It also can be used when a minor tranquilizer is needed.

9. **Dalmane (flurazepam):** This fairly new drug seems to work well for night time sedation. We are using it for the more persistent sleep problems. The starting dose that we have used is 15 mgm. Even at that low dose some are over-sedated the next morning.

10. **Serax (oxazepam):** A drug very similar to Valium (diazepam), Serax was evaluated at a geriatric care unit in Alma, Michigan, by Dr. Jack F. Sanders. He used 94 disturbed patients in his study, the average being 81. He began with one 10 mgm capsule b.i.d. which was increased prn. The drug was effective. The only side effect was drowsiness. I have not used Serax but I have used Valium which is closely related and I have found drowsiness to the point of unresponsiveness a problem. One organically brain damaged patient slept for two days after the drug had been discontinued, on a Valium dosage of 2 mgm t.i.d. Valium may also create withdrawal problems; we had one patient whose Valium was evidently reduced at too

rapid a rate because he promptly convulsed. This problem was solved with a slower reduction in the Valium dosage. Librium may also cause seizures when withdrawn too rapidly. The seizures can be difficult to treat. I am not using either drug in the elderly patient with behavior or insomnia problems.[7,8]

Psychoactivators

I have had more experience with the antidepressants, under the classification outlined in previous paragraphs, than I have had with psychomotor stimulants. I will therefore limit my discussion to the antidepressants. The tricyclic antidepressants are at times very useful for patients who have trouble sleeping. This may be a manifestation of depression and it will respond well to this type of medication. Also if the patient is agitated at night and sleeps during the daytime, this reversal of the normal diurnal rhythm can be changed by using the phenothiazine type of medication. This is seen fairly often in the senile arteriosclerotic patient.

1. **Tofranil (imipramine):** This drug improves depression, anorexia and insomnia. It takes at least four weeks to evaluate for optimum results. The dose sometimes has had to be boosted to 150 to 200 mgm per day to be effective. Some reports have credited the drug with 60-80 per cent effectiveness. The endogenous depressions respond well. Depressions due to senile dementia and arteriosclerosis do not respond well. It seems to have a favorable result in decubital ulcers as well as in cachexia, which are additional benefits.

2. **Vivactil:** This psychoactivator is effective in a shorter period of time than is Tofranil. It sometimes tends to be overstimulating in the geriatric patient, and we have had cardiovascular side effects, mainly cardiac arrhythmias. I rarely give more than 20 mgm per day.

3. **Elavil:** This is a useful drug in the anxious depressed state. I don't find a marked difference between it and Sinequan. Both can be quite sedating, resulting in problems of falling.

We have found that once the antidepressants and the phenothiazines have been titrated to the optimum dose, the total daily dose can be given twice a day and be effective. The secret to optimum therapy is gradual titration either up or down. Each drug tried should be given an ample trial period before changing to another drug. Dosage in the elderly may be a bugaboo. Usually the rule is to lower the regular dose by half.[1,2,4]

Which Drug to Use?

The basic way to decide which drug to use is to evaluate clinical evidence. In other words, we treat the target symptoms presenting. The target symptoms being arousal (irritability, excitement or lethargy), affectivity (hostility, suspiciousness, anxiety), mood (elation, depression), integration (perceptual disturbance, thought disorder, delusions) and organicity (memory disturbance).

Treatment can also be based on EEG findings. The EEG has a characteristic pattern in vascular cerebral insufficiency. In these cases drugs that increase cerebral blood supply would be effective. Such drugs as Persantin or Papaverine are useful. Nicotinic acid has proven to be quite helpful in the organic syndrome, also. It should be given in doses of 300 mgm or more per day.[1,6]

Side Effects Can Be a Problem

Some experts have recently had second thoughts about the advisability of administering high doses of psychotropic drugs for long periods of time. Marked EKG changes have been found in man after prolonged use of the phenothiazines seem to be linked to cardiac arrhythmias and sudden death. The closely related tricyclic antidepressants also seem to be involved in adverse cardiovascular effects. Hypotension, as a side effect of the phenothiazines, seems to be a factor. They also seem to cause increased plasma levels of the catecholamines which precipitate arrhythmias. They cause a drop in tissue norepinephrine; therefore hypotension. Haldol seems to be a drug that has no known cardiotoxic effects. In addition, common side effects in the tricyclic antidepressants are dryness of the mouth, constipation and difficulty of micturition.

The extrapyramidal reaction is the most common side effects of the major tranquilizers in people 50 years of age and over. Akathesia (increased agitation) is next. These side effects may be misinterpreted and one thinks that the patient is worse and adds more medication rather than reducing it. It is important for nursing personnel to become familiar with these signs since falls can be avoided if side effects are detected soon. The extrapyramidal symptoms and signs are facial rigidity, general stiffness, restlessness, rocking, pacing, etc. Confusional reactions and lowering of the convulsive threshold may be problems. These side effects can be modified by anti-Parkinson drug therapy. The medications that we use most often are: (1) Artane, 6-10 mgm per day for tremor and akinesia, (2) Kemadrin, 7: 5-15 mgm per day, the same as Artane, (3) Cogentin, 2-4 mgm per day, for rigidity, (4) Benadryl, 75-200 mgm per day for tension, tremor and insomnia.

The use of sedatives in the elderly may prompt severe and unexpected reactions. For example, the barbiturates will produce marked cerebral depression. Elderly patients need to be followed with care![1,2,8,9,10]

A New Approach

Cylert (magnesium pemoline) is a drug not on the market as yet but it has undergone considerable clinical investigation. It is a substance which stimulates ribonucleic acid synthesis in the brain and has been demonstrated to improve memory in healty individuals. General improvement was abserved in patients with chronic Korsakoff's syndrome. It is given in 25 and 50 mgm daily doses.

Conclusions

In order to feel that psychopharmacology is worthwhile in the geriatric patient in need of this type of therapy, we must accept the needed precautions in utilizing these drugs and we need to know as much as possible about accumulated data on the drugs. Adequate baseline physical examination and follow-up is important in understanding and treating any side effects that occur. In general one might say that serious sequelae are, at worst, uncommon and that in knowledgeable and thoughtful hands the phenothiazines and other psychopharmacological drugs are effective agents for the treatment of the elderly patient with a behavior problem. •

ACKNOWLEDGMENT

The author wishes to express her sincere appreciation to Mrs. Carol L. Conner, the librarian at the Veterans Administration Hospital in Sheridan, Wyoming. She has given a great deal of assistance in obtaining references for this article.

REFERENCES

[1] Ban, Thomas: Psychopharmacology in the Aged, Baltimore, Williams and Wilkins Co., 1969.

[2] Freeman, Joseph: Clinical Principles and Drugs in the Aging. Springfield, Ill., Charles C. Thomas, 1963.

[3] Freedman, Alfred M., and Kaplan, H. T.: Comprehensive Textbook of Psychiatry, Baltimore, Williams and Wilkins Co., 1968.

[4] McDonald, Carrick: Treatment of the mentally disturbed geriatric patient, Geriatrics, Jan. 1968, pp. 168-175.

[5] Stotsky, Bernard: Elderly Patient: Mental Patients in Nursing Homes, New York, Grune and Stratton, 1968.

[6] Silver, D., Lehmann, H. E., Kral, V. A., Ban, T. A., and DeBow, S. L.: Experimental psychiatry—III (The comparative effectiveness of psychoactive drugs in hospitalized geriatric patients), presented at the Quebec Psychopharmacological Association Meeting, Quebec City, Quebec, Nov. 10, 1967.

[7] Sanders, Jack: Evaluation of oxazepam and placebos in emotionally disturbed aged patients, Geriatrics, Sept. 1965, pp. 739-746.

[8] Davison-Butterworth, Keith: The chemopsychotherapeutics of geriatric sedation, J. Amer. Geriatrics Society, Feb. 1970, pp. 97-114.

[9] Alexander, Carl S.: Phenothiazine tranquilizers as cause of cardiomyopathy, Emergency Medicine, Nov. 1970, pp. 71-75.

[10] Boshes, Louis, and Doshay, Lewis: Practical management of Parkinson's disease, Geriatrics, Sept. 1964, pp. 644-653.

Campbell's Soups... wide variety...for limited appetites

Many people lose interest in food as they grow older. Some of them are fussy eaters—with only a few favorite foods. Others become indifferent to foods—because planning and preparing meals becomes a chore. Here Campbell's Soups can help —for these four very good reasons:

Appeal With a variety of tastes, textures, aromas, and colors, Campbell's Soups can add interest and appetite appeal. And they're easy to eat—ingredients are tender, bite-size. Many patients on special diets will find soups they can enjoy among the more than 50 different varieties available.

Nourishment Campbell's Soups contain selected meats and sea foods, best garden vegetables—carefully processed to help retain their natural flavors and nutritive values.

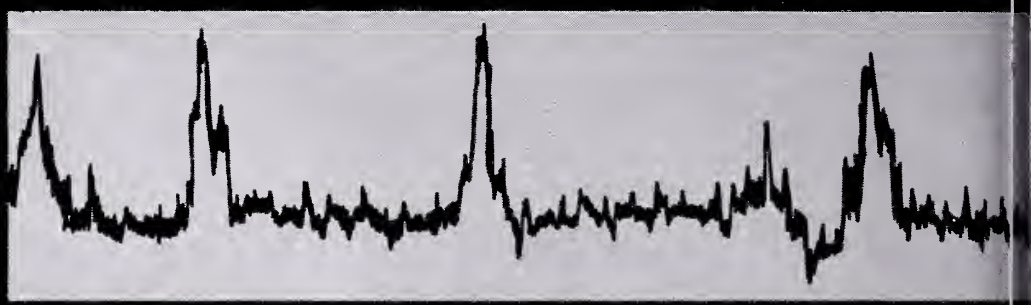
Convenience Within 4 minutes a bowl of delicious soup is heated and ready to eat.

Economy Campbell's Soups are inexpensive—an important consideration to those whose budgets are limited.

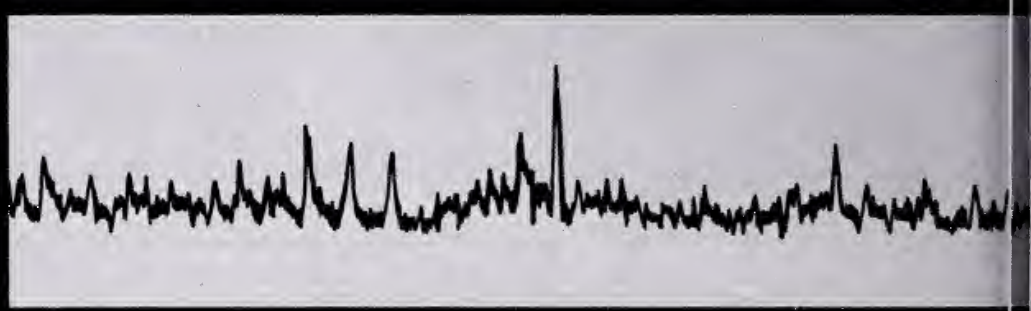
Recommend Campbell's Soups . . . and, of course, enjoy them yourself. Remember, *there's a soup for almost every patient and diet . . . and for every meal.*

An intestinal autobiography of rage, contentment and horror*

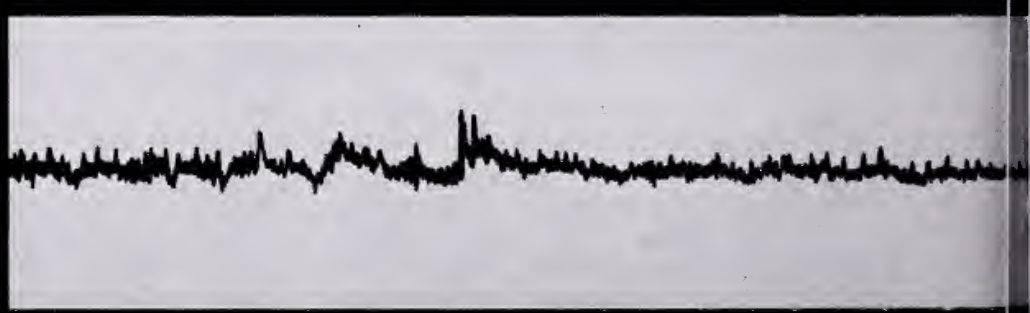
"Feeling unfairly taxed by the government (Internal Revenue Service) and not given enough attention by A.U.O. [an experimenter to whom the subject became very attached], he became overtly critical and accusatory. He shouted, raged, and threatened to quit."*



"The motility that day was quiet. This type of recording is seen regularly when he is relaxed and contented and the laboratory seems peaceful."*



He was overwhelmed by "paralyzing horror" when told he would need a partial laryngectomy for removal of an early carcinoma; "...the activity of the ileum virtually ceased for over a five-minute period...."*



Background

*Data presented here derive from a 13-year ongoing study by Henry Harrison Sadler, M.D., and Aline Underhill Orten, Ph.D., at Wayne State University. Their findings, which demonstrate a correlation between the emotional state of a human subject and the motility of an isolated segment of his ileum, were published in the April, 1968, *American Journal of Psychiatry*, volume 124, page 1375.

The subject is a 56-year-old man with a 40-cm Thiry loop of ileum created as a result of emergency surgery. A person of modest attainment and simple tastes, the subject depends on the investigators as he might his own family. His full-time job is as a "human laboratory," and throughout the 13-year perio of the study, he has taken great personal prid in his own participation.

A story charged with emotion

The graphs on the facing page are intestinal motility readings on a human subject experiencing the emotions of rage, contentment and horror (see "Background" below left). This "intestinal autobiography" dramatizes the point that certain emotions correlate with specific patterns of G.I. motility.

The visceral clutch and functional G.I. disorders

The gut response to stress has been amply demonstrated in many functional G.I. disorders. Nervous diarrhea and irritable colon syndrome, for example, are disorders associated with abnormal G.I. motility. And these disorders are commonest among patients sensitive to life-stress situations productive of conflict and excessive anxiety.

Librax® calms anxiety, calms the gut

In these areas of G.I. pathology, Librax has become a mainstay of adjunctive therapy. Reason? Effective two-way calming action. Librax, by relieving excessive anxiety, not only helps calm emotional overreaction to stress, it controls intestinal hypermotility, too. Depend on Librax—the only drug that combines the well-known antianxiety action of Librium® (chlordiazepoxide HCl) and the potent, dependable antisecretory/antispasmodic action of Quarzan® (clidinium Br).

1 or 2 capsules, 3 or 4 times daily in the treatment of nervous diarrhea and irritable colon syndrome

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances, syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

In functional G.I. disorders, adjunctive Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

calms anxiety, calms the G.I. tract

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

68th Annual Meeting

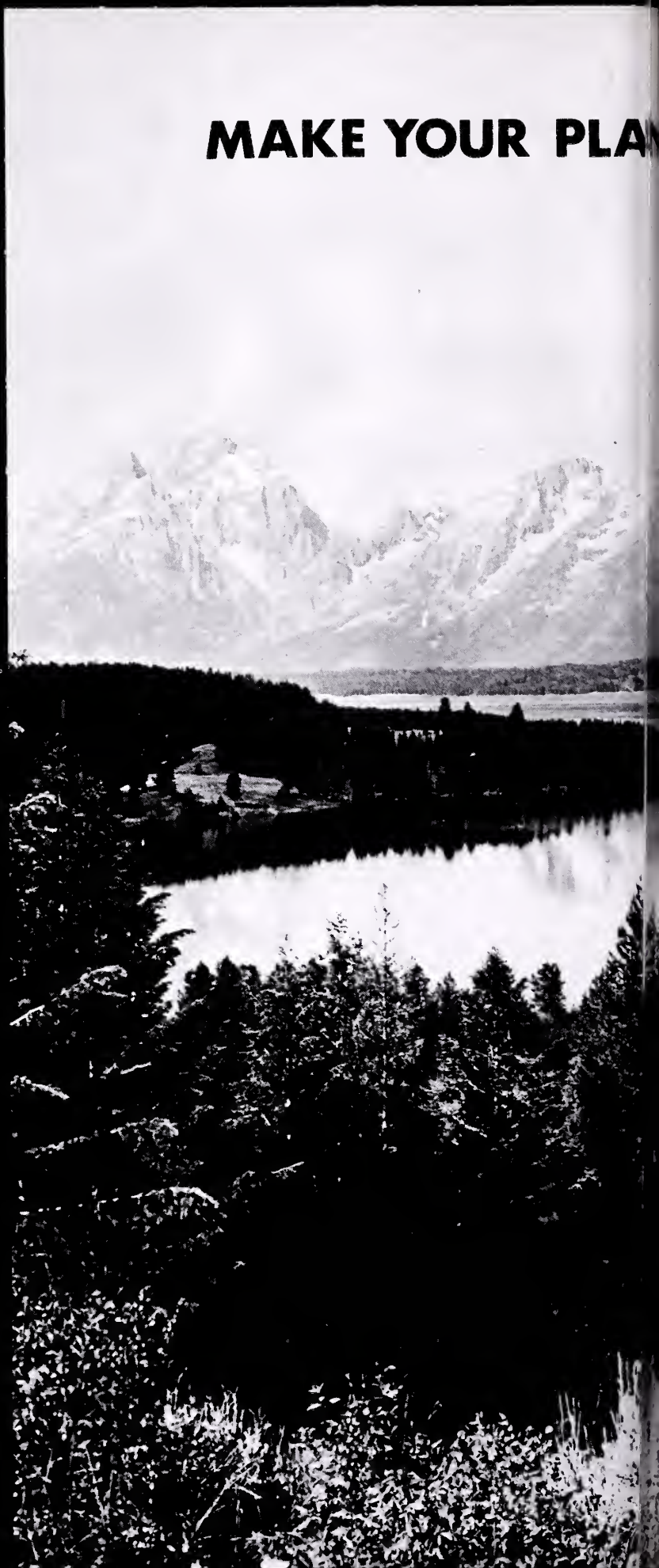
Wyoming State Medical Society

Jackson Lake Lodge
Moran, Wyo.
AUG. 31 – SEPT. 3, 1971

Scientific Sessions
Business Clinics
Social Events

For information, write—

Wyoming
State Medical Society
P. O. Box 1387
Cheyenne, Wyoming 82001



ATTEND

SPEAKERS

Wesley W. Hall, M.D.
AMA
President

Sen. Clifford P. Hansen
WYOPAC
Luncheon Speaker

W. Ballantine Henley, Ph.D.
President, United Church
of Religious Science

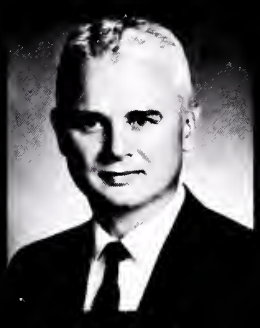
SCIENTIFIC SPEAKERS

Philip P. Ellis, M.D.
Denver, Colorado

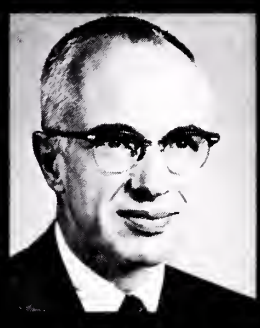
Herman A. Freckman, M.D.
Cincinnati, Ohio

Edgar G. Harrison, M.D.
Mayo Clinic
Rochester, Minnesota

Richard L. Keenan, M.D.
New York, New York



Joseph L. Kovarik, M.D.
Denver, Colorado



Clark H. Millikan, M.D.
Mayo Clinic
Rochester, Minnesota

Matilda S. McIntire, M.D.
Omaha, Nebraska

Alexander Schirger, M.D.
Mayo Clinic
Rochester, Minnesota

Sheldon G. Sheps, M.D.
Mayo Clinic
Rochester, Minnesota

WYOMING

ABSTRACT OF MINUTES* HOUSE OF DELEGATES

Wyoming State Medical Society

Sixty-seventh Annual Meeting
September 1 through 4, 1970

Jackson Lake Lodge
Grand Teton National Park, Wyoming

FIRST SESSION
Tuesday, September 1, 1970

The 67th Annual Meeting of the House of Delegates of the Wyoming State Medical Society was called to order at Jackson Lake Lodge, Grand Teton National Park, Wyoming at 1:30 P.M. on Tuesday, September the 1st, 1970 by Dr. John J. Corbett, President of the Wyoming State Medical Society. The President called for a report of the Credentials Committee. Dr. Mahnke called roll of the House of Delegates and indicated to the President that there was a quorum present.

Dr. Nicholas moved that Dr. Bennett be seated as a delegate from Albany County; the motion was seconded and approved by the House of Delegates.

Dr. Mahnke moved that the report of the Credentials Committee be accepted and it was seconded and the motion carried.

Dr. Thomas Nicholas lead the House of Delegates in an opening prayer.

President Corbett turned the gavel over to the Speaker of the House, Dr. Goode Cheatham and in turn he turned the gavel over to Dr. Black, Vice Speaker of the House.

Dr. Black then gave the report of the Memorial Committee and the name of Dr. G. R. James of Casper was also added to the list and the deceased members were honored with a moment of silence.

Speaker Cheatham then introduced the guests present: Dr. John Wood, President of the Colorado Medical Society; Mr. Don Derry, Executive Secretary of the Colorado Medical Society; Dr. Roger Mason, President-elect of the Nebraska State Medical Association; Dr. Jim Syner, Assistant Director of the Colorado-Wyoming Regional Medical Program.

The minutes of the Wyoming State Medical Society Council meetings of August 26, 1969, August 29, 1969, January 11, 1970, March 28, 1970, June 13, 1970, and September 1, 1970 were referred to the Reference Committee on Executive, Governmental Affairs and Economics with the following exceptions: the January 11, 1970 minutes on Page 2, Item d, concerning a Preceptorship Program for students was referred to the Medical Services Committee. The minutes of March 28, 1970 on Page 2, the Resolution concerning a shortage of doctors was referred to the Research, Organization and Scientific Reference Committee. On Page 4, Item 4b, concerning the Treasurer's Report was referred to the Committee on Research, Organization and Scientific Program. The Supplemental Information contained in the Program for Medical Collection Bureaus was referred to the Executive, Governmental Affairs and Economics Reference Committee. The Supplemental Information contained in the Program for Medical Collection Bureaus was referred to the Executive, Governmental Affairs and Economics Reference Committee. The Supplemental Information on By-Law Changes was referred to the Reference Committee on Research, Organization and Scientific Program. The Council Minutes of June 14, 1970, Page 2, Item 3b, the President's Report on Medical Education was referred to the Reference Committee on Research, Organization and Scientific Program. Item 4, the Treasurer's Report and Item 5b were referred to the Reference Committee on Research, Organization and Scientific Program. Item 6d, concerning Foundations in Wyoming and Item c, Legislation were referred to the Reference Committee on Executive, Governmental Affairs and Economics.

The minutes of the Scholarship Loan Fund Committee were referred to the Reference Committee on Executive, Governmental Affairs and Economics.

The Officers' Reports as contained in the Delegate's Packet were referred to the Reference Committee on Executive, Governmental Affairs and Economics.

Special Committee Reports as contained in the Delegate's Packet were then referred to the Medical Services Reference Committee.

The report of the Committee on Abortion Law changes and the letter from Dr. Froyd was referred to Medical Services Reference Committee. The Majority and Minority Reports were also referred to the Medical Services Committee.

The Peer Review and Fee Negotiation Committee Report was referred to the Executive, Governmental Affairs and Economics Committee. The *Rocky Mountain Medical Journal* Report was referred to the Research, Organization and Scientific Program Reference Committee. Dr. Robert Fowler's letter of May 15, 1970 as contained in the Delegate's Packet was referred to the Medical Services Reference Committee. The Report of the Committee for a Diabetes Camp was referred to the Medical Services Committee. The WICHE Report was referred to the Research, Organization, and Scientific Program Reference Committee. The Liaison Committee Report and a letter concerning Perinatal Deaths was referred to the Medical Services Committee.

Dr. Harlan B. Anderson, Delegate to the AMA, gave his report concerning the House of Delegates at the AMA meeting of June 21 through 25,

*These minutes represent actions taken largely on material from the official packet of the Wyoming State Medical Society. This packet contains the reports that are representative of committee activities and recommendations and form an official part of these minutes.

1970. After the report, it was moved, seconded and the motion carried that the report be accepted.

The Reference Committee Reports as contained in the Delegate's Packet were referred to the various committees.

Dr. Cheatham read the following resolution which was referred to the Medical Services Reference Committee:

> WHEREAS, it has been demonstrated that many areas in Wyoming have inadequate Delivery Care Systems, Health Care Systems, and
>
> WHEREAS, it appears from experience in other states, this problem can be partially improved by a new person in the Delivery Care System presently known as a Physician Assistant;
>
> BE IT THEREFORE RESOLVED, that the Wyoming State Medical Society endorse the concept of Physician Assistant Training Programs, and lend its support to such programs being developed in Wyoming.

A letter from the Northwest County Medical Society of April 29, 1970 was read to the House of Delegates and paragraphs 1 and 2 were referred to the Reference Committee on Research, Organization and Scientific Program. Paragraph 4 was referred to the Reference Committee on Executive, Governmental Affairs and Economics.

A letter from the Goshen County Medical Society dated February 16, 1970 was read and paragraph 1 was referred to the Medical Services Reference Committee. Paragraphs 2 and 4 were referred to the Executive, Governmental Affairs and Economics Committee.

Dr. Hunton read a resolution submitted by the Laramie County Medical Society:

> WHEREAS, the modern office techniques with photo copies that will permit simplification of reporting information, and
>
> WHEREAS, every possible effort must be made to eliminate unnecessary duplication of effort in order to conserve a physician's time;
>
> BE IT THEREFORE RESOLVED, that the House of Delegates instruct the Wyoming State Medical Society to appoint an ad hoc committee to meet with representatives of the Wyoming Hospital and Medical Association, the Wyoming Health Insurance Council, representatives of Title XIX and Title XVIII and other interested Governmental agencies who will be charged with developing and making operational the following system.
>
> a. The preparation of a hospital record face sheet which will provide adequate information for the hospital and will supply all essential information to all insurance carriers.
>
> b. With the assistance of the Standing Committee on Hospital Liaison strive to have all hospitals within the State of Wyoming accept and use this record face sheet.
>
> c. Provide all insurance carriers in Wyoming and all Wyoming hospitals with a copy of this resolution. The above resolution was referred to the Reference Committee on Executive, Governmental Affairs and Economics.

The House of Delegates recessed at 4:40 o'clock P.M.

SECOND SESSION

Friday, September 4, 1970

Speaker of the House Cheatham called the House of Delegates to order at 1:30 o'clock P.M. on September the 4th, 1970, and Dr. Cook was seated as a delegate from Teton County. Speaker Cheatham then introduced Mrs. Harmon Wilmoth, Past President of the Woman's Auxiliary. Mrs. Wilmoth introduced Mrs. G. Prentiss Lee, President-Elect of the Woman's Auxiliary of the American Medical Association. Speaker Cheatham then introduced the President of the Wyoming State Medical Society Woman's Auxiliary, Mrs. John J. Corbett.

Medical Services Report

Dr. Froyd presented the report of the **Medical Services Reference Committee**. The Student AMA Preceptorship proposal and Item 3d of January 11, 1970, Council minutes pertaining to changing the name of the AMA Medicine and Religion Committee. This motion was presented to the House of Delegates and was approved.

The Report of the **Public Health and Safety Committee** by Dr. Laurence Greene, Jr. was accepted as printed in the Delegate's Packet and the Reference Committee so moved. The motion was approved.

The **Child Health Sub-Committee Report** was reviewed and considered along with the letter of Dr. Robert M. Fowler to Dr. John J. Corbett and it was the Committee's recommendation that the President be instructed to endorse the effort to protect children against abuse by supporting the proposed changes in the State law. The motion was approved by the House of Delegates.

The Report of the **Special Committee for Perinatal Mortality** was reviewed and the committee endorsed the proposed approach to the Study of Perinatal Mortality and recommended that the President reappoint the present members of the Committee. The Committee acted upon the following portions of the Special Committee Report. 1. The report form was approved, 2. The results of the report form should be reviewed twice a year, 3. The suggestion that education be given to physicians in areas of need as found was approved. Dr. Froyd moved that the House of Delegates adopt this portion of the report. The motion was approved.

The report of the **Special Liaison Committee** was reviewed and the Medical Services Committee moved that the President appoint three physicians to serve on a Liaison Committee with the Wyoming Nurses' Association. It was further moved that the Wyoming State Medical Society approve the principle of legal immunity for hospital committee members and it was further moved that the House of Delegates endorse the principle of legal immunity for hospital committeemen. The motions were presented to the House of Delegates and approved. The Committee reviewed the majority and minority report of the Special Committee to Study Abortion Laws and it was moved and the motion carried that neither report be accepted.

Dr. Froyd moved that the following policy statement be adopted by the House of Delegates of the Wyoming State Medical Society:

> The members of the Wyoming State Medical Society, being physicians, do subscribe to the age old precept that as physicians we consider the maintenance of life in a healthy state as our primary responsibility. We also recognize that there are occasions when an induced abortion may be necessary to meet

this responsibility. Therefore, it is the policy of the Wyoming State Medical Society that:

1. The Wyoming State Medical Society has no opposition to a change in the existing abortion law.

2. Any change should remove the issue of induced abortion from the criminal code except as it complies with the Medical Practices Act.

3. There must be no obligation expressed or implied under any law forcing a physician or hospital to be involved in an induced abortion.

4. Induced abortion must remain within the field of medical care, and any change must keep the procedure in the hands of a duly licensed physician.

5. The Wyoming State Medical Society opposes the concept of abortion on demand. After considerable discussion the statement was approved with one dissenting vote.

The report of the **Special Committee on Mental Health** was reviewed, and moved that this report be accepted as written. The motion was unanimously approved.

The proposal contained in the Delegate's Packet from the Intermountain Regional Medical Program concerning establishment of a Diabetes Education and Detection Center was reviewed. It was moved that the concept as expressed be endorsed by the Wyoming State Medical Society but that further detailed study for implementation was desired. After discussion the proposal was approved with one dissenting vote.

1. The letter from the Goshen County Medical Society to Robert G. Smith dated February 16, 1970 was referred to the Medical Services Committee and was reviewed and it was moved that no action be taken at this time. The motion was approved by the House of Delegates.

Dr. Froyd submitted the following resolution:

WHEREAS, it has been demonstrated that many areas in Wyoming have inadequate health care delivery systems;

WHEREAS, it appears from experience in other states, this problem can be partially improved by a new person presently known as a physician assistant;

BE IT THEREFORE RESOLVED, that the Wyoming State Medical Society endorse the concept of Physician Assistant Training Programs, and lend its support to such programs being developed in Wyoming.

The resolution as amended was passed by the House of Delegates with one dissenting vote.

Dr. Froyd made the motion and it was seconded and approved that he be able to introduce a resolution under new business.

Dr. Froyd submitted the resolution as follows:

WHEREAS, the field of dialysis for chronic renal disease is still considered experimental by the profession; and

WHEREAS, the State of Wyoming does not contain at this time the highly trained physicians and paramedical personnel necessary to operate a dialysis program for chronic renal disease; and

WHEREAS, the cost of creating a chronic renal disease center is prohibitive in relation to the benefit obtained by Wyoming citizens;

THEREFORE BE IT RESOLVED that we recommend to the Governor of the State of Wyoming that he support the policy decision of the Director of the Division of Public Health, Department of Health and Social Services, concerning dialysis for chronic renal disease and that he support the out-of-state dialysis for chronic renal disease programs, such as the University of Colorado, so that the citizens of Wyoming could continue to benefit from such programs until such a time when a similar program is feasible in Wyoming.

The above resolution was discussed and the second paragraph as amended was voted on and the results were thirteen for and eleven against. The amended resolution was voted on by the House of Delegates and was passed with two opposing votes.

Dr. Froyd moved that the Medical Services Reference Committee Report be accepted as amended. The motion was passed by the House of Delegates.

Dr. Thomas A. Nicholas then gave the report of the **Executive, Governmental Affairs and Economics Reference Committee.**

Dr. Nicholas recommended that the minutes of the last annual meeting be adopted as printed with the exception that the fifth line from the bottom of the page be amended to read "And the motion carried, there being one nay vote and the remainder yeas." The committee reviewed the Council Meeting notes of August 26, August 29, 1969, January 11, March 28, June 14, 1970 and the committee recommended their approval as printed. The committee also reviewed the minutes of the meeting of September 1, 1970, and special attention was called to the mid-winter seminar held at the Sheridan Inn, Sheridan, Wyoming which will be February 17 through 20, 1971.

The committee moved that the Executive Secretary attempt to arrange future dates for the annual meeting, preferably the third week in August or another date to avoid conflict with the starting of school.

The committee wished to emphasize the action of the Council that non-payment of the forty dollar assessment constituted forfeiture of membership in the Wyoming State Medical Society as well as the American Medical Association.

The committee called attention to the budget of thirty-one thousand eight hundred and seventy-five dollars for the year 1971. The Reference Committee recommended approval of the minutes as printed.

Dr. Nicholas then moved for approval of this portion of his report and the motion was approved.

Dr. Nicholas then presented the following portion of his report to the House of Delegates:

The committee on **Executive, Governmental Affairs and Economics** has noted specific discussions and council recommendations of the following suggestions:

1. Problems with the obtaining of, and the rapid increase in the cost of malpractice insurance;

2. The need for a physically responsible agency closely allied with the Medical Society to accept and dispose of such funds as may become available by grants from Governmental and/or other agencies;

3. The need for a strong and effective Peer Review system in our State's Society and the necessity to not only reimburse those members of such Peer Review committees for their expenses but to pay them a salary for their skill and time;

4. The ever increasing evidence that make Governmental Health Programs, such as Medicare and Medicaid will be handled by negotiated contracts with closed panel type practices or hospital based practices or with health maintenance programs;

5. The possible advantage of a Statewide bill collecting and information system;

6. The need for development of, and administration of, educational and other programs of Medical Society supervision;

7. The report of the Peer Review committee stating their concern with the future negotiations and adjudications with agencies who, by law or other regulations have maximum payments for certain procedures.

The committee feels that these programs requiring Medical Society supervision have become so complex that it is not possible to provide proper and adequate administration with our present organization; therefore, the committee feels and it is in agreement with the recommendation of the Council made at its meeting on June 14, 1970, that an organization must be developed ancillary to, but controlled by, the Wyoming State Medical Society as presently constituted. After discussion by those in attendance, the committee noted that a proven way to handle these programs is through establishment of an organization similar to the many health care foundations that have been established in other states.

The committee recommended that the House of Delegates instruct the officers, counselors and Executive Secretary with legal consultation to form such an organization.

Dr. Nicholas then moved that this portion of his report by the committee be accepted. This portion of his report was approved unanimously.

Dr. Nicholas indicated that his committee wished the following legislation be introduced at the next session of the Wyoming legislature:

1. A bill which will be required that all malpractice insurance carriers report to the insurance commissioner all ciaims paid against physicians. This bill will provide data to be used for more intelligent setting of premium rates for malpractice in this State, eliminate the present need to rely solely on undisclosed data of the insuring companies. It will, unfortunately, make a public record of any settlement against a physician and as such, may not be in the best immediate interests of that physician; however, after considerable discussion, the committee recommends they do endorse this bill with a desire to emphasize this possible disadvantage to the House of Delegates, for their consideration. The motion was presented and approved with three dissenting votes.

Dr. Nicholas then continued with his report on legislation.

2. A bill requiring Plaintiffs to furnish security insuring payment of court trial and reasonable attorney fees for defending frivolities on unreasonable or unnecessary actions. His committee recommended a do endorse.

3. A bill which more specifically limits malpractice actions regarding the definition of physician's liability and so forth. His committee recommended a do endorse on this legislation.

4. A bill which more specifically limits the time for initiation for malpractice actions, the time being a maximum of two years subject to definitions. His committee recommended a do endorse.

5. A bill for the establishment of a new juvenile court system. His committee recommended do endorse.

6. A bill to better define the management of child abuse. His committee recommended do endorse.

7. A bill to permit formation of professional corporations. The committee recommended do endorse.

8. A bill providing for implied consent to submit to blood alcohol determination. The committee recommended do endorse.

9. A bill permitting hospital medical staff committees to have access to the information in patient records and clearly protecting the identity of the patient and prohibiting such information being admissible to court proceedings. The committee recommended do endorse.

Dr. Nicholas then moved for the acceptance of the above portion of his report and after discussion on Bill No. 9, the motion was approved.

Dr. Nicholas indicated that his committee had before it a resolution presented by the Laramie County Delegation and the committee was in agreement with the intent of the resolution but recommended that the House of Delegates do not pass this resolution and presented the following resolution in its place:

WHEREAS, modern office techniques with photo copies will permit simplification of reporting information; and

WHEREAS, every possible effort must be made to eliminate unnecessary reduplication of effort in order to conserve a physician's time;

BE IT THEREFORE RESOLVED, that the House of Delegates instruct the President of the Wyoming State Medical Society to appoint an ad hoc committee to meet with representatives of the Wyoming Hospital and Medical Association, representatives of Title XIX and Title XVIII and other interested Governmental agencies and who will be charged with developing and making operational the following system:

(a) The preparation of a hospital face sheet which will provide adequate information for the hospital and will supply all essential information to all insurance carriers.

(b) With the assistance of a Standing Committee on Hospital Liaison strive to have all hospitals within the State of Wyoming accept and use this record face sheet.

(c) Provide all insurance carriers in Wyoming and all Wyoming hospitals with a copy of this resolution.

The above resolution was presented to the House of Delegates and was accepted as amended.

The following resolution was adopted by the House of Delegates as amended:

WHEREAS, at the present time physicians in Wyoming are not eligible for Blue Cross, Blue Shield, Major Medical Coverage, excepting groups of five or more; and

WHEREAS, Blue Cross, Blue Shield has offered to provide such group coverage treating all members of the Society and their employees as a single group; and

WHEREAS, such coverage will be made available at rates less than those made available anywhere else, including the present Blue Cross, Blue Shield contract; and

WHEREAS, the only additional stipulation is that the physician employer pay the annual premiums for his employees allowing the option of including their families at their own expense and not requiring the inclusion of employees who are otherwise insured;

BE IT THEREFORE RESOLVED, that this Wyoming State Medical Society accept the offer from Blue Cross, Blue Shield to write such group coverage adopting this plan as a plan of the Wyoming State Medical Society. It is understood that this coverage will provide for a thirty-six dollar a day hospital room, Blue Shield payments at the level of Plan P-35 and with a twenty thousand dollar major medical coverage per individual and at a rate currently set at fifteen dollars fifty-five cents per month for a single individual and thirty-one dollars and ten cents per family unit per month.

It was moved that the House of Delegates not follow the action as proposed in the communication from the Goshen County Medical Society recommending that the Medical Practices Act be amended to exclude Osteopaths and the following resolution was introduced in its place:

WHEREAS, the State Board of Medical Examiners has been informed by the Attorney General of the State of Wyoming that the present Medical Practices Act is inadequate and unenforceable;

THEREFORE BE IT RESOLVED, that the House of Delegates instruct the President of the Wyoming State Medical Society to appoint a committee to rewrite and support the Medical Practices Act of Wyoming with the stipulation that such committee members should be at least fifty per cent composed of members of the Board of Medical Examiners.

After a discussion the resolution was approved by the House of Delegates.

Dr. Nicholas indicated that the minutes of the **Scholarship Loan Fund Committee** meeting of August 16 and August 29, 1969 were reviewed and recommended acceptance of the minutes as printed. The motion was approved by the House of Delegates.

Dr. Nicholas moved that the House of Delegates approve the following committee reports as printed:

1. The Woman's Auxiliary to the Wyoming State Medical Society.
2. The Workmen's Compensation Advisory Committee.
3. The Wyoming Advisory Committee to Selective Service.
4. Public Relations Committee.

The House of Delegates approved these reports.

At the meeting of the Council of June 14, 1970, the discussion on **Medical Education,** the Council recommended to the House of Delegates that the House of Delegates consider a donation to Medical Education from the Wyoming State Medical Society savings. Because of this action the following resolution was introduced:

WHEREAS, the need for development of an elevative form of education for new doctors has become evident;

WHEREAS, the need for doctors in the State of Wyoming is severe;

WHEREAS, it is evident that the need for the training of young doctors within the State of Wyoming seems necessary to keep this generation within the State's Society;

BE IT THEREFORE RESOLVED, that the House of Delegates instruct the President and the Legislative Committee to generate such legislative action as may be necessary to ask the State to develop a Medical Education Fund; and appropriate at least fifty thousand dollars for that fund,

AND BE IT THEREFORE RESOLVED, that if such a fund is appropriated by the State of Wyoming that the Wyoming State Medical Society donate ten thousand dollars to this fund. Such money to be drawn from the Wyoming State Medical Society savings fund.

Dr. Nicholas then introduced the following resolution which was adopted by the House of Delegates:

WHEREAS, much of the business transacted through the year by the Council results in the necessity of drawing resolutions; and

WHEREAS, it is possible that future members of the Reference Committee may not also be members of the Council;

BE IT THEREFORE RESOLVED, that any business conducted by the Council during the year which must be referred to the House of Delegates and committee action, that such request for action be forwarded to the Reference Committee in the form of written resolutions.

It was moved to delay approval of the budget until a later time. The motion was approved by the House of Delegates.

Dr. Nicholas then moved for adoption of this entire report and the motion carried.

Dr. T. L. Johnston, chairman, then gave the report of the **Research, Organization and Scientific Program Reference Committee.**

Dr. Johnston indicated that no written report was received from four sub-committees, including Program and Entertainment, Rocky Mountain Medical Conference, Science Fair or the Time and Place Sub-Committee. He indicated that an oral report on Time and Place would be made at this meeting of the House of Delegates. His committee did comment that this year's annual meeting showed excellent planning and execution.

The **Research, Organization and Scientific Program Reference Committee** reviewed reports of the AMA Education and Research Foundations Sub-Committee, the Constitution and By-Law Sub-Committee, the Credentials Sub-Committee and of the Orientation Program Sub-Committee. Dr. Johnston moved that these reports be approved as written. Motion carried.

The committee moved to approve the **Historical Sub-Committee** Report with the addition of the name of the Wyoming State Medical Society's 26th President, J. L. Lynn, M.D. of Lander.

The Reference Committee moved to approve the report of the **Memorial Sub-Committee** with the addition of one name, G. R. James, M.D. of Casper who was licensed February 6, 1933, and who died August 26, 1970.

The Reference Committee also moved approval of the report submitted by Dr. Francis A. Barrett, Chairman of the **Rocky Mountain Medical Journal Committee,** including approval of the letter from Donald G. Derry, Managing Editor of the *Journal,* about a necessary increase of subscription price from two and a half to three and a half per member. Dr. Johnston then moved approval of the **WICHE Committee** Report submitted by Dr. Barrett along with this portion of his report. The motion was approved.

Dr. Johnston indicated that his Reference Committee discussed portions of the Wyoming State Medical Society Council meeting minutes of January 11, 1970, and he moved approval of Section 3d of the President's report in the minutes on the Student Preceptorship Program. The motion was approved by the House of Delegates.

Dr. Johnston indicated that the Council meeting minutes of March 28, 1970, Section 3b regarding medical education which noted, "President Corbett reviewed the Three State Medical Meeting held on Wednesday, March 25, and recommended that the Council endorse a joint effort to expand medical education in Wyoming." The following resolution was presented to the Council. It was moved and seconded and passed unanimously that the resolution be accepted. The resolution was as follows:

WHEREAS, the State of Wyoming and the Northern Rocky Mountain area is faced with a serious shortage of physicians; and

WHEREAS, the increasing health care needs are multiplying demands for doctors in both metropolitan and rural areas in the State of Wyoming; and

WHEREAS, statistics show that a regional medical school with facilities in the three state area of Wyoming, Idaho, and Montana would increase the number of doctors selecting Wyoming as the site of their practice; and

WHEREAS, the expansion of the number of physicians in Wyoming would provide increased quality of health care and substantial secondary benefits to the residents of the State of Wyoming;

THEREFORE BE IT RESOLVED that the Council of the Wyoming State Medical Society endorse the concept of a regional medical school and urge the State of Wyoming to take an active role in the formation and funding of a medical school in the northern Rocky Mountain area.

Further, the Council pledges its cooperation and efforts to bring about the establishment of a medical education facility in Wyoming and calls on all physicians in the State to lend their assistance to this program.

The above portion of Dr. Johnston's report was accepted by the House of Delegates.

Dr. Johnston then moved the House of Delegates to approve the constitution and by-law changes to be considered at the next annual meeting, 1971.

Dr. Johnston's Reference Committee also moved to approve the constitution and by-law change recommended by the Council in Section 8e of its March 28 meeting minutes to delete the paragraph "B" and Section 2 of Article IV—Membership of the Wyoming State Medical Society constitution and by-laws.

"B" states that one qualification and obligation of society members is that each "shall be a citizen of the United States." The Reference Committee further moved that the By-Law Committee be directed to ascertain from the Council if the recommended change would satisfactorily accomplish all the Council requests in their action. It was moved and seconded that this be approved and laid over until the next annual meeting. The motion was approved.

Dr. Johnston then moved that consideration of donation of money to a new Medical Education Fund be delayed until it is established that the Wyoming State Medical Society budget is in balance. The motion was approved by the House of Delegates.

Dr. Johnston moved approval of the report and suggestion made in the June 14 Council meeting minutes for handling vouchers and checks, the Council's recommendation read:

"Dr. Mahnke, Treasurer, presented figures on the Society's bank account and savings. It was discussed that the financial records be kept by the Executive Secretary with the Treasurer still signing checks and all vouchers still being approved by the Executive Secretary, President and Treasurer before checks are written. The Executive Secretary said if the Council would like him to do this he would do so. After discussion it was moved, seconded and passed that the Council direct the Executive Secretary to work this out with the Treasurer."

The above recommendation was approved by the House of Delegates.

Dr. Johnston also moved for approval of the recruitment letter suggestion made by the Executive Secretary in Section 5 "B" of the June 14 Council minutes. The motion was approved by the House of Delegates.

Dr. Johnston's Reference Committee moved not to pass the first resolution proposed by the Northwest Counties' Medical Society. The said resolution was defeated by the House of Delegates with one voting for passage of the resolution.

Dr. Johnston also made a do not pass recommendation on the third resolution proposed by the Northwest Counties' Medical Society. The resolution was defeated by the House of Delegates with two voting for passage of the resolution.

Dr. Johnston moved approval of the Treasurer's Report with two corrections. The Treasurer's Report was approved with the stated corrections.

Discussion of the budget was postponed until after discussion of the dues.

It was moved that there be an amendment to the proposed dues that the dues be effective starting in 1972. The amendment was defeated.

It was moved and the motion was approved by the House of Delegates that the annual dues for the Wyoming State Medical Society be increased to one hundred twenty-five dollars per member for the year 1970-71. There were two dissenting votes.

It was moved and seconded and the motion carried unanimously that the budget be accepted as presented.

The portion of Dr. Johnston's report concerning the donation of money to a new Medical Education Fund was discussed and after amendment and discussion the motion was defeated concerning a donation of money.

The following resolution as amended, submitted by Dr. Nicholas was defeated by the House of Delegates:

WHEREAS, the need for development of an innovative form of education for new doctors has become evident;

WHEREAS, the need for new young doctors in the State of Wyoming is severe;

WHEREAS, it is evident that the need for the training of young doctors in the State of Wyoming seems necessary to have generation in the State Medical Society;

BE IT THEREFORE RESOLVED, that the House of Delegates instruct the President, the Legislative Committee to generate such legislative action as may be necessary to ask the state to develop a Medical Education Fund.

Dr. Christensen then gave his report of the Grievance Committee and his report was accepted by the House of Delegates.

Speaker Cheatham then relinquished the floor to the President, Dr. John J. Corbett who gave the President's Annual Address.

Dr. Cheatham then introduced the following resolution:

WHEREAS, the 67th Annual Meeting of the Wyoming State Medical Society held at Jackson Lake Lodge on September 1 through 4, 1970 was the most successful having accomplished much from both the scientific and organizational aspects; and

WHEREAS, the Wyoming State Medical Society House of Delegates is especially appreciative of the influences outside its own body which contributed to the enjoyment and accomplishments of the meeting; and

WHEREAS, the House of Delegates desires to express its appreciation to all those having cooperated to make the meeting a success;

BE IT THEREFORE RESOLVED, that the Wyoming State Medical Society has expressed its appreciation and gratitude to all those involved in and contributing to the success of the 67th Annual Convention, including the exhibitors and their congenial personnel, the distinguished guests who made possible the success of the Scientific Programs, the officers and employees of the Grand Teton Lodge Company, and all persons concerned with organization of the meeting.

It was moved and seconded that this resolution be adopted; motion carried.

Dr. Harlan Anderson was nominated as AMA delegate for a two-year term and there being no other nominations he was elected unanimously by the House of Delegates.

Dr. Thomas Nicholas was nominated as the alternate delegate to the AMA for a two-year term. There being no other nominations he was elected unanimously.

The following names were elected to the Rocky Mountain Medical Conference, Dr. David M. Cook from Jackson and Dr. Patrick Nolan from Buffalo. Dr. Duane Kline was nominated as the Advisor to the Selective Service System and a unanimous ballot was cast for him.

The Chairman of the Nominating Committee then presented the following names as nominated by the Nominating Committee:

Dr. Fenworth Downing, President
Dr. William Erickson, President-elect
Dr. Donald Mahnke, Vice President
Dr. Paul Yedinak, Secretary

There being no nominations made from the floor for any of the offices above it was moved, seconded and unanimously passed that the Secretary cast a unanimous ballot for each of the nominees listed.

There were two names submitted for Treasurer, Dr. Stoetzel and Dr. Hunton. After a ballot of the House of Delegates, Dr. Hunton was elected as Treasurer of the Wyoming State Medical Society.

The following three names were submitted for the Blue Cross Committee:

Dr. Louis Booth from Sheridan, Dr. Dale Larsen from Casper, and Dr. Jim Stoetzel. It was moved that all three names be submitted.

At this time Dr. Corbett turned the meeting over to the President-elect, Dr. Fenworth Downing, the Incoming President.

Dr. Downing then gave a report on the **Time and Place Committee.** In his report he indicated that the 1971 meeting would be August the 31st through September the 3rd at the Jackson Lake Lodge.

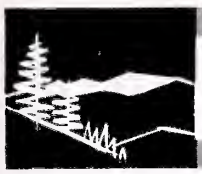
The motion was made and seconded that the meeting be adjourned and the House of Delegates stood at adjournment.

of the tetracycline-nystatin products

...none is lower priced

TETRACYCLINE HCl 25 mg. NYSTATIN 25,000 U./cc.

Lederle LEDERLE LABORATORIES, A Division of American Cyanamid Company, Pearl River, New York 10965



COLORADO

Outstanding Civilian Service Award

The Surgeon General of the U. S. Army has awarded the Outstanding Civilian Service Medal to Dr. Gordon Meiklejohn, professor and chairman of the Department of Medicine in the University of Colorado School of Medicine for his service as consultant in internal medicine and infectious diseases at Fitzsimons General Hospital 1951-1970.

Dr. Meiklejohn has headed the CU Department of Medicine since April 1, 1951. Earlier, he had been a member of the faculty of the University of California School of Medicine in San Francisco. He has been a consultant to the World Health Organization and National Research Council and is a member of the residency review committee of the Council on Medical Education, American Medical Assn. He serves on the National Scientific Advisory Council of National Jewish Hospital and in 1967 received the General Rose Memorial Hospital Award of Honor.

* * * * *

University of Colorado Medical Alumni Association Officers

Dr. J. Philip Clarke, Denver specialist in internal medicine, has been installed as 1971-72 president of the University of Colorado Medical Alumni Assn.

Dr. Clarke is a 1946 graduate of the CU School of Medicine and serves as an associate clinical professor of medicine on its volunteer faculty. He succeeds Dr. Lorenz R. Wurtzebach, a member of the class of '43 and an associate clinical professor of radiology on the volunteer faculty.

Members of the association elected Dr. Melvin A. Johnson, a Denver internist and 1945 graduate of the school, as their president-elect to take office in May 1972.

Other officers elected are Dr. Duval E. Harvey, vice president and Dr. Ralph E. Brundige of Lakewood, secretary-treasurer.

Dr. Paul R. Hildebrand Retires

A distinguished 41-year career in Colorado medicine will draw to a close June 30 when Dr. Paul R. Hildebrand, coordinator of the Colorado-Wyoming Regional Medical Program (CWRMP) and long-time Brush, Colorado physician, retires to a new life of golf, fishing and family.

In March 1967, Dr. Hildebrand left his 36-year medical practice in Brush to become first the director and then the coordinator of CWRMP, a new federally funded program working with health professionals and institutions to improve the quality and delivery of medical care in the two-state region. Under his leadership, CWRMP moved from a planning status to a fully operational program providing support to continuing medical education and other health care activities in Colorado and Wyoming.

Dr. Hildebrand, who prefers the title "family doctor" over his others, was born June 12, 1906, in Harrison County, Ind., and was graduated from Owosso, Mich., High School in 1923. He received his doctor of medicine degree from the University of Michigan Medical School in 1930 and began his internship at Colorado General Hospital in Denver. While an intern, he met and married Miss Ann Howerter, R.N., then nursing supervisor of surgery at Colorado General. The following year, after a month of locum tenens practice in Haxtun, he established his practice in Brush.

A member of the Army Reserve since 1934, he entered active service in 1942 as a first lieutenant in the U.S. Army Medical Corps. He served in the European Theater and was discharged in 1946 in the rank of major. He continued his part-time military career in the National Guard, rose to the rank of colonel and retired from the Guard in 1966 after serving as commander of the 147th U.S. Army Hospital and as State Surgeon.

Dr. Hildebrand served as president of the Colorado Academy of General Practice in 1949, and was twice president of the Morgan County Medical Society. He is a member of the American Medical Association and was president of the Colorado Medical Society in 1965-66. One of his prime responsibilities during his tenure as president was to acquaint skeptical Colorado physicians with the new federal Medicare program.

Newton Optical Company

Catering to
Medical Profession Patronage

309 16th Street
Denver 80202

GUILD Rx OPTICIANS

Telephone
534-8714

Graduate Medical Assistants

Available for placement now. seven-month intensive preparation, including one month internship in a doctor's office.

We welcome your inquiries!

Contact Director of Placements at (303) 222-1526

Colorado College
of Medical and Dental Assistants
655 Broadway, Denver, Colorado

OBITUARIES

Colorado

John W. Linfesty, MD, died May 18, 1971 in Porter Memorial Hospital after an extended illness. He was 63.

Doctor Linfesty was born in 1907 in Redlands, California. He received his MD degree from the Medical College of Virginia in 1935. In 1939 he was married to Ann Snook in Richmond, Virginia.

While in the service Doctor Linfesty commanded general hospitals at Travis, Parks and Sheppard air force bases. During World War II he commanded the 101st U.S. General Hospital in England, moving later to Berlin with the first occupation forces in Germany.

He was a fellow of the American College of Surgeons and the American Academy of Ophthalmologists and a member of the Colorado Ophthalmological Society, the American Medical Association, and the Colorado and Denver Medical Societies.

Surviving, in addition to his widow, are a son, Edward Joseph of Golden; two brothers, Dr. Charles Linfesty and Lyman D. Linfesty of Bakersfield, California; and one grandson.

Howard A. LaMoure, MD, retired Denver area physician, died May 12, 1971. A native of New York, he was born in Albany in 1875.

Doctor LaMoure pursued his education in the Albany Academy for six years, and began preparation at Albany Medical College where he was graduated in 1900. He married Ina Salisbury in 1904. He entered practical work in the state hospital in Rochester and was identified with Craig Colony at Sonyea, New York, and the Custodial Asylum in Rome, New York.

In 1941 he came to the Colorado State Hospital at Pueblo, where he served as Superintendent. He also was Superintendent at the State Home and Training School at Ridge from 1935 to 1950.

He was a broad-minded man, taking a deep interest in many affairs relating to public good. Fraternally he was a Mason, and exemplified in his life the beneficent of the craft. Doctor LaMoure was a member of the American Medico-Psychological Association, the American Medical Association, the Colorado Medical Society, the Pueblo County Medical Society, and was Vice President of Clear Creek Valley Medical Society for the 1938-39 term. He also served as a delegate for this Society for several terms. As a member of the Colorado Medical Society he was presented the Pin of Honor in 1955.

John G. Ryan, MD, retired Denver physician, died June 4, 1971 at the age of 88. Born in Taintor, Iowa, November 15, 1882, he was educated at Pennsylvania College, University of Chicago and Rush Medical College. He was married to Flora Canaday in Illinois in 1912.

Doctor Ryan was with the out-patient department of the University of Colorado Medical School and was assistant professor of medicine since 1933. He was associated with the University of Denver department of social work, physiology and internal medicine. He served as a captain in the medical corps of the U.S. Army in various hospitals from 1918-1919, and established his private practice in Denver in 1919. As an internist and founding member of the Colorado Society of Internal Medicine, he taught at the University of Colorado School of Medicine from 1921 to 1935. Doctor Ryan was certified as an internist by the American Board of Internal Medicine in 1937. During his long career he was affiliated with many Denver area hospitals.

He was a past president of the Denver Medical Society, a member of the Colorado Medical Society, the Denver Society of Internal Medicine (past president), a member of the Clinical and Pathological Society, and a charter member of the American Medical Association.

Doctor Ryan was a member of the Lakewood Country Club, the Denver Athletic Club and the Denver Masonic Temple. He is survived by his widow, Flora.

PUBLICATION PRINTING...

NEWSPAPERS • MAGAZINES
ANNUALS • QUARTERLIES
BOOKLETS • BROCHURES
REPORTS • ROSTERS • PROGRAMS
HANDBOOKS • CATALOGUES
•
EDITORIAL ASSISTANCE • BINDING
ART DEPARTMENT • MAILING

Publishers Press, Inc. / Monitor Publications

2177 W. 7th DENVER 892-0166

MEETINGS

Children's Hospital—Denver
Continuing Education Department
AMERICAN ACADEMY OF PEDIATRICS
POSTGRADUATE COURSE
Vail, Colorado
September 13-15, 1971

WORKSHOP ON ANTIOBIOTICS
October 8, 1971
CENTER FOR DISEASE CONTROL
SYMPOSIUM ON NUTRITION
October 22, 1971
No fee. Registration limited.

BRISTOL SEMINAR ON PEDIATRICS INFECTION
December 10, 1971

American Medical Association
31st Annual Congress on
Occupational Health
Jackson Lake Lodge,
Grand Teton National Park, Wyoming
August 29-30, 1971

18th Western Cardiac Conference
"WHAT'S NEW IN CARDIOLOGY"
University of Colorado Medical Center—
Denver, Colorado
October 20-22, 1971

Fee, $20.00—Colorado Participants; $35.00—Out of State Participants.

For further information write: Colorado Heart Association, 1375 Delaware Street, Denver, Colorado 80204.

Montana Academy of Oto-Ophthalmology
Canyon Village, Yellowstone Park
August 26-28, 1971

For further information, contact James D. Morrison, M.D., Secretary-Treasurer, Montana Academy of Oto-Ophthalmology, Box 1856, Billings, Montana.

93rd Annual Meeting
Montana Medical Association
Great Falls, Montana
September 16-18, 1971

University of Colorado School of Medicine
Postgraduate Medical Education
INTERNAL MEDICINE
Estes Park, Colorado
July 20-24, 1971

DERMATOLOGY
Aspen, Colorado
July 22-24, 1971

RECENT ADVANCES IN
RHEUMATIC DISEASES
American College of Physicians
Estes Park, Colorado
July 26-29, 1971

HOSPITAL MEDICAL STAFF CONFERENCE
Estes Park, Colorado
September 27-October 1, 1971

HIGH RISK INFANT CARE
(Limited)
October 4-8, 1971

OBSTETRICS AND GYNECOLOGY
October 11-13, 1971

The above dates are subject to change. Detailed programs will be available six to eight weeks before course date. Information will be mailed to all inquiries prior to the general program distribution. For further information and detailed programs, write to: The Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado.

PHONOCARDIOGRAPHY
PULSE TRACINGS-VECTORCARDIOGRAPHY
A WORKSHOP

September 27-30, 1971

This is an intensive four-day program covering in detail the field of phonocardiography and pulse tracings and vectorcardiography. Emphasis will be placed on the values and limitations of these techniques and related areas as applies to the patient's diagnostic problems. Two days will be dedicated to phonocardiography and pulse tracings and two days for vectorcardiography. The morning sessions will be devoted exclusively to individual analysis of tracings by the participants under the orientation of the local and guest faculties. This program is intended for those who wish a close and detailed exposure to the values and the limitations of these techniques.

PRESENTED BY:
The American College of Cardiology
and
Institute for Cardiovascular Diseases, Good Samaritan Hospital, Phoenix, Arizona

AT:
Mountain Shadows Resort Hotel, Scottsdale, Arizona

PROGRAM DIRECTOR:
Alberto Benchimol, M.D., Director, Institute for Cardiovascular Diseases, Good Samaritan Hospital

GUEST SPEAKER:
Bernard L. Segal, M.D., Associate Professor of Medicine, Hahnemann Medical College and Hospital, Philadelphia, Pennsylvania

FOR INFORMATION CONCERNING THE PROGRAM, WRITE:
Mr. William Nelligan
Executive Director
American College of Cardiology
9650 Rockville Pike
Bethesda, Maryland 20014

MEDICAL SCHOOL NOTES

University of New Mexico School of Medicine

Health Sciences—With more than 70,000 drugs on the market, why are only a few misused? Research is underway at University of New Mexico to tell which drugs have "abuse potential."

The $4,700 grant has been made to Dr. Douglas Ferraro, associate professor in the Department of Psychology, from National Science Foundation. Working with him is Jim Trost, formerly of the Aeromedical Laboratory at Holloman Air Force Base, which has been closed by the Air Force. Trost developed the method whereby animals can self-administer drugs, using the drug as reinforcement. The project has support from many areas of the university; the School of Medicine, Department of Physiology, psychology, and Department of Pharmacology. All have access to the research.

The grant has made it possible to purchase ten Old World monkeys which are housed in the animal research facility at UNM School of Medicine. There were no primate (monkey) facilities previously at UNM, so now personnel can be trained in the handling of primates.

Dr. Ferraro said the UNM experiment will switch from drug screening to the question of drug dependence: under what conditions do organisms (human or monkeys) become dependent on drugs? If they are dependent in one situation, will they be in another? Or if you cut off their drugs in one situation, will they go back on drugs in another situation? This may have relevance if they are withdrawn from drugs in the hospital, for instance. Will they return to drug usage at home?

Dr. Ferraro said that with the exception of only a few drugs, including marijuana, the monkeys will inject themselves all day.

"Marijuana apparently is not a reinforcing drug to the animals, which brings up the question of why is it, then so widely used today?" Ferraro said.

A small, temporary building near the medical school currently is being rennovated as a quarantine and conditioning area for the monkeys.

"Before they reach Albuquerque, they have been through the hands of the trapper, the vender, and the long air flight to the United States," said Dr. Philip Day, director of the medical school's Animal Resources Facility. He said the quarantine and conditioning takes a minimum of 8 to 12 weeks.

* * * * *

Seven seniors from University of New Mexico School of Medicine will be working this summer with private practitioners, learning "firsthand" what a doctor's life actually is all about. Five will be working in New Mexico, one in Oklahoma, and one in New York City.

Next year's graduating class of 41 future doctors will be the fifth class to graduate from the medical school. There will be a total of 193 medical students in 1971-72, plus 163 interns and residents training under UNM medical school supervision.

University of Utah College of Medicine

The Utah Board of Higher Education has approved a $5,161,532 Health, Education and Welfare Special Projects grant to increase Medical School enrollment at the University of Utah College of Medicine. The grant, to be apportioned over a five-year period, will also provide funds to employ new faculty members, renovate and improve existing medical teaching facilities, and purchase equipment and supplies.

The major provision of the grant is to increase Medical School enrollment, presently 75 students per entering freshman class, to 100 students per entering freshman class, beginning in the fall of 1971.

Dr. Franklin G. Ebaugh, Jr., Dean of the University of Utah College of Medicine, said "the new grant will help to provide more doctors at a time when there is a national shortage of doctors, as well as providing more educational opportunity for aspiring medical students from Utah and the surrounding states.

"The grant is indicative of the U.S. Public Health Service's regard for the consistently high national standing of doctors graduated by this institution and the international reputation of the faculty and staff."

THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

Advances in Surgery: Edited by Claude E. Welch. Chicago, 1965-1970, Yearbook. 4 vols. Price: Not set.

An Atlas of Children's Surgery: By Robert Gross. Philadelphia, 1970, Saunders. 191 p. Price: $19.00.

Brands, Generics, Prices and Quality: The Prescribing Debate After A Decade: By Pharmaceutical Manufacturers Association. Washington, D.C., 1971, PMA. 118 p. Price: Gift.

Clinical Oncology for Medical Students and Physicians: Edited by Philip Rubin. 3rd ed. Rochester, New York, 1971, American Cancer Society. 429 p. Price: Gift.

Mayo Clinic Diet Manual: By Mayo Clinic. 4th ed. Philadelphia, 1971, Saunders. 166 p. Price: $5.95.

Poisoning: Toxicology, Symptoms and Treatments: By Jay M. Arena. 2nd ed. Springfield, Ill., 1970, Thomas. 715 p. Price: $43.50.

Book Review

Rape: Offenders and their victims. By John M. Macdonald, M.D. Chas. C. Thomas, Springfield, Ill., 1971.

Doctor Macdonald is a professor of psychiatry and the Director of forensic psychiatry at the University of Colorado School of Medicine. After addressing himself to *The Murderer and His Victim, Homicidal Threats,* and *Psychiatry and the Criminal* in his earlier books, he takes on rapists and their victims while conceding that "A dispassionate approach to the problem of rape is not easily obtained." To his credit, he distills into print essences from "the Denver Police Department files on two hundred consecutive victims of forcible rape. . . ." enlivened by his clinical assessment while "present when many of the victims . . . were interviewed by detectives . . ." and his own private interviews of offenders. His distillation of data into essential statistics, comparative literature, and narrative accounts of representative cases achieves a perspective which can well mature the student, law enforcement official, and even some potential victims.

Fragmentary quotations testify to the author's talent for communication, objectivity, and careful reporting:

- "Editors sometimes show little sensitivity or discretion in their reports of the nature and circumstances of sexual assault."
- "The child's experience in the courtroom may be as traumatic as the rape, especially when the victim is unfairly attacked by the defense attorney. It matters not to some attorneys that their accusations may lack any basis in fact."
- "Victims who do not immediately terminate obscene (telephone) calls encourage further harassment. One woman complained to police that a man made the most revolting sexual suggestions to her over the telephone for almost an hour."
- "District attorneys exercise much greater power in the administration of the law than is generally recognized."
- "Thoughtful rapists sometimes warn their victims to be more careful in the future."

The short section on "Preventive measures by potential victims" could well be reproduced for distribution to groups of women receptive to preventive health measures amid our permissive and violence-prone society.

This reviewer's only negative concern about this original, highly readable, and valuable contribution to forensic and medical literature, is the hope that Dr. Macdonald's passing references to the use of hormone therapy in (morning after) contraception, control of male hypersexuality; and the use of castration as a sometime help in control of the sexual psychopath (plus getting him out of prison sooner) will not be taken by authorities as recommended and proved therapy. These are clearly not meant that way, but extraordinary things are quoted in Court out of context as gospel from a recognized authority.

Clyde Stanfield, M.D.

WANT ADS

MEDICAL SPACE AVAILABLE near hospital. Medical Dental Building, 3600 South Logan, Englewood, Colorado, 781-3106. 571-1-3B

THREE-YEAR OLD FULLY EQUIPPED, AIR CONDITIONED CLINIC BUILDING, 1800 sq. ft., for rent or sale. Ideal site for either office practice only or can use open staff hospitals in Brighton or Greeley. 45 miles from Denver on Interstate 80. Smog-free rural community, no drug problems, etc. Call 659-5687 after 6 p.m. 271-2-6B

MEDICAL SUITE FOR RENT in modern 3 man clinic. Fully furnished consultation room with 2 adjoining examining rooms. Includes use of 4 aides, fully equipped lab, physiotherapy room, X-ray room, EKG room, reception room and business office. Contact: Harold E. Gilman, M.D., 3405 Downing Street, Denver, Colorado (303) 623-6171. 771-3-4B

A YOUNG BOARD CERTIFIED or Board Eligible Ob-Gyn with military obligation completed, is wanted to join two Board certified fellows in Northern Colorado college community. Salary leading to full partnership. Send Curriculum Vitae. Contact: Nelson E. Bachus, M.D., Fort Collins Women's Clinic, 1080 East Elizabeth, Fort Collins, Colorado 80521. 771-4-1

COLORADO SPRINGS, COLORADO—one side of new building for rent. Quality area, private office, business office, reception room, three other rooms, carpeted, air conditioned. Parking. Contact: Glenn Lilly, 3614 Airport Road, Colorado Springs, Colorado 80910, phone 596-4251. 771-5-2B

GENERALIST FOR INTERESTING, active practice excluding OB. Adequate vacation and Postgraduate Study time. Salary commensurate with experience and productivity. Early opportunity for partnership. Year round out-door recreation with casual living in beautiful country. No state income tax. Start October 1, 1971. Contact: Allen L, Sklar, M.D., Lakeview Medical Associates Ltd., 774 Mays Boulevard, P.O. Drawer 1029, Incline Village, Nevada 89450, Phone: (702) 831-0420. 671-2-3

SEPARATE OFFICE SPACE available to Board Qualified orthopedic surgeon. Retain fee for assigned hours for coverage of emergency room. Staff privileges in adjacent hospital. Nevada Medical Properties, Inc., 1401 East Lake Mead Boulevard, North Las Vegas, Nevada 89030. 671-4-4B

SEPARATE OFFICE SPACE available to Board Qualified internist. Retainer fee for assigned hours for coverage of emergency room. Staff privileges in adjacent hospital. Nevada Medical Properties, Inc., 1401 East Lake Mead Blvd., North Las Vegas, Nevada 89030. 671-5-4B

INTERNIST—with special interest in cardiology. Private practice and supervision of coronary care unit—60 bed community hospital, 30 minutes from Denver, Colorado. Please reply to: Box 771-1-1, Rocky Mountain Medical Journal, 1809 E. 18th Avenue, Denver, Colorado 80218. 771-1-1

COLORADO ROCKIES. One or two Generalists (GP or IM with or w/o subspecialty) to complete 3 or 4 man group (or Corp.). New offices and hospital available. No riots, smog or congestion. Unlimited outdoors—all seasons—all kinds. Growing area—good schools and churches. Easy access to Metropolitan Denver. Monetary and philosophic satisfaction equal or superior to anywhere! Contact: E. G. Ceriani, M.D., Kremmling Clinic, Kremmling, Colorado 80459. 771-2-1

INSTANT SUCCESS—no investment required—present physician is returning to residency as soon as replacement is found. Large Family Practice is immediately available. Located fifteen miles from Austin on I.H. 35. Very modern 3,000 sq. ft. office fully equipped, located in a rapidly developing area. The practice could support two physicians. Please reply—Rt. 1, Box 11, Buda, Texas 78610. 771-6-2B

450-1360 Sq. Ft. in the CHERRY HILLS MEDICAL ARTS BUILDING COMPLEX, 3535 So. Lafayette Street, Englewood, Colorado. Minutes from two fine hospitals and the New Englewood Shopping Center. Complex consists of 27 doctors. Will consider remodeling to suit. For information call 761-2543, eves. 985-1909. 671-9-2B

SEPARATE OFFICE SPACE available for general practitioner. Adjacent to hospital with staff opening. If desirous may supplement income by covering emergency room on assigned hours. Nevada Medical Properties, Inc., 1401 East Lake Mead Blvd., North Las Vegas, Nevada 89030. 671-3-4B

THE EMORY JOHN BRADY HOSPITAL

401 Southgate Road **COLORADO SPRINGS, COLORADO 80906** **MElrose 4-8828**

E. JAMES BRADY, M.D., *Medical Director*

CAMPBELL F. RICE, *Superintendent*

Francis A. O'Donnell, M.D.
Robert W. Davis, M.D.
Richard L. Conde, M.D.
Paul A. Draper, M.D.
Charles W. McClellan, M.D.
James E. Edwards, M.D.

For the care and treatment of Psychiatric disorders.

Individual and Group Psychotherapy and Somatic Therapies.

Occupational, diversional and outdoor activities.

X-ray, Clinical Laboratory and Electroencephalography.

INDEX TO ADVERTISERS

American College of Cardiology 63

Arch Laboratories
Dicarbosil 3

Broadmoor Hotel 67

Burroughs Wellcome Company
Neosporin 6

Campbell Soup Company
Soups 49

Colorado College of Medical and Dental Assistants 61

Denver Optic Company 67

Emory John Brady Hospital 66

Lederle Laboratories
Achrostatin 60

Lilly, Eli & Company
Cordran Tape 8

McNeil Laboratories
Parafon Forte 7

Mutual of Omaha 21

National Drug Company
AVC 17
Orenzyme 18
Tepanil 35
Quinamm 36

Newton Optical Company 61

Picker Medical Products 14

Practice Management Services 12

Publishers Press/
Monitor Publications 62

Robins, A. H. & Company
Robinul 24-25

Roche Laboratories
Efudex ..... Cover II, Page 1
Librax 50-51
Valium ..... Cover IV

Searle, G. D. & Company
Ovulen / Demulen ..... 68, Cover III

Stuart Pharmaceuticals
Div. of Atlas Chemical Industries, Inc.
Mylanta 4

Upjohn Company
E-Mycin 5

ARTIFICIAL EYES

Plastic eyes and glass eyes specially made to fit the most difficult cases. An expert eye-maker is in our office at all times to give your patients the satisfaction they must have. In business since 1906.

Write or phone for full details.

DENVER OPTIC COMPANY
330 University Bldg. • 16th and Champa • 825-0229
Denver, Colorado 80202

BROADMOOR yourselves

for the pure pleasure of it all!

Discover America's finest resort facilities, dining and accommodations, here within 5,000 acres of enjoyment at the gateway to the Colorado Rockies.

The BROADMOOR Colorado Springs, Colorado

An excerpt from the Searle series "The Ecology of Birth Control"* No.

The Unwanted Child & Birth Control

Ten thousand battered children— a growing medical problem?

In his daily practice the physician witnesses the human suffering caused by uncontrolled fertility. Perhaps one of its most tragic effects is the unwanted child, who so often experiences parental rejection. The rejected child in a family may be neglected, nagged and severely punished. Sometimes he is criminally abused. Child abuse is common enough to have become a separate clinical entity: the "battered child" syndrome. Reliable statistics are difficult to obtain, but it has been estimated that in this country alone roughly 10,000 children are "battered" per year, and their number may be increasing.

A revealing picture of child abuse patterns is provided by one study of the American Humane Society. More than half of the 662 children involved (all reported in newspapers within a single year) were less than 4 years of age. One fourth of the battered youngsters died; most of these deaths were of children less than 2 years of age. Fathers were more often guilty of child abuse than mothers, but sometimes both parents participated. The study indicated that battered children are not limited to any particular socioeconomic stratum.

***For the complete brochure, and others in the series as they appear, please write to Searle or ask your Searle representative.** Explored in the forthcoming issues will be the history of birth control, the influence of poverty, ethnic factors and marital status, its role in illness, its genetic implications and its effects on the emotional and behavioral life of the individual.

MIXED STATE
Library
College of Physicians
19 South 22nd Street
Philadelphia, Pennsylvania 19103

COLLEGE OF PHYSICIANS
OF PHILADELPHIA
SAMPLE COPY

Rocky Mountain Medical Journal

August 1971
VOLUME 68 • NUMBER 8

COLORADO • MONTANA • NEVADA • NEW MEXICO • UTAH • WYOMING

Call it what you will, it may be premalignant.

Before

3/29/67 Before therapy with 5%-FU cream. Patient P. T. shows a moderately severe solar keratotic involvement. Note residual scarring from the previous cryosurgical and electrosurgical procedures on forehead and ridge of nose adjacent to periauricular area.

After

6/12/67 Seven weeks after cessation of therapy. Reactions have subsided. Residual scarring is not seen except for that due to prior surgery. Inflammation has disappeared and face is clear of keratotic lesions.

ROCHE
Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

MDS

ıand Efudex® (fluorouracil) 5% cream can resolve it.

all it actinic, solar or senile keratoses, any regard it as "precancerous."[1,2]

ıpical fluorouracil, considered by some dermatologists to be a major lvance in the treatment of multiple solar keratoses,[3,4] offers the physi- ın a relatively inexpensive alternative to cryosurgery, electrodesic- tion and cold knife surgery. Of the topical fluorouracils available, only ;udex offers 2% and 5% solution and 5% cream formulations—formula- ons that have proved effective in the treatment of these mutliple lesions.

sual duration of therapy, 2 to 4 weeks.

udies showed that with the 2% and 5% Efudex preparations, the usual ration of therapy was only 2 to 4 weeks.[5] Other studies with topical orouracil revealed that when concentrations of less than 2% were ed, significant numbers of lesions recurred.[6]

reats the lesions you can't see, too.

umerous lesions, not apparent prior to 2% and 5% Efudex therapy, anifested themselves by definite reactions, while intervening skin mained relatively unaffected.[5] The early eradication of these subclini- l lesions (which may otherwise have undergone further progression) obably accounts for the reduced incidence of future solar keratoses in ıtients treated with topical fluorouracil—especially with 5% ncentrations.[6]

ow to identify solar keratoses.

ypically, the lesion—a flat or slightly elevated brown to red-brown ıpule—is dry, rough, adherent and sharply defined. Multiple lesions e the rule.

redictable therapeutic response.

ıe response to a typical course of Efudex therapy is usually aracteristic and predictable. After 3 or 4 days of treatment, erythema gins to appear in the area of keratoses. This is followed by a moderate intense inflammatory response, scaling and occasionally moderate nderness or pain. The height of this response generally occurs two eeks after the start of therapy and then begins to subside as treatment stopped. Within two weeks of discontinuing medication, the flammation is usually gone. Lesions that do not respond should biopsied.

ferences: 1. Allen, A. C.: *The Skin, A Clinicopathological Treatise*, ed. 2, New York, ıne & Stratton, 1967, p. 842. 2. Dillaha, C. J.; Jansen, G. T, and Honeycutt, W. M.: 'Atment of Actinic Keratoses with Topical Fluorouracil," in Waisman, M. (ed.): *armaceutical Therapeutics in Dermatology*, Springfield, Ill., Charles C Thomas, 1968, 92. 3. Belisario, J. C.: *Cutis*, *6*:293, 1970. 4. Sams, W. M.: *Arch. Derm.*, *97*:14, 1968. Data on file, Hoffmann-La Roche Inc., Nutley, New Jersey. 6. Williams, A. C., and ein, E.: *Cancer*, *25*:450, 1970.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

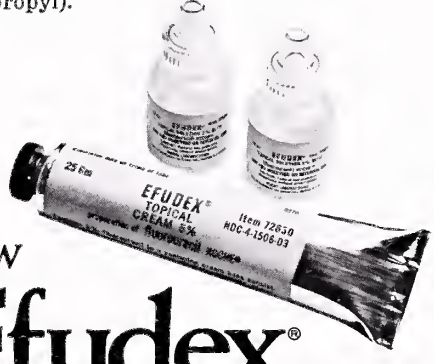
Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).



now

Efudex®

(fluorouracil)
cream/solution

ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222 (area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204

Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

Address all manuscripts, organization and other news items relating to editorial content to appropriate state editor, see below.

AUGUST 1971
Volume 68, Number 8

Editorials

9 "WHY COSTS ARE RISING"
10 ADEQUATE MEDICAL CARE AND ITS DISTRIBUTION — NO SIMPLE ANSWER

Articles

11 LAPAROSCOPY IN GYNECOLOGY — *Tibor Engel, MD, Robert A. Reid, MD, and Horace E. Thompson, MD, Denver, Colorado*
19 TRACHEAL SUPPORT IN THE TREATMENT OF EMPHYSEMA — *W. Gerald Rainer, MD, James P. Newby, MD, and David Dirks, Denver, Colorado*
22 HERPES SIMPLEX ENCEPHALITIS — *Carl R. Kjeldsberg, MD, Elizabeth H. Macintyre, MD, A. E. Vatter, PhD, and E. Lee Garlett, MD, Denver, Colorado*
25 PSYCHOSURGICAL TREATMENT OF NEUROSIS — *Harry R. Boyd, MD, and Charles G. Freed, MD, Denver, Colorado*
27 MANAGEMENT OF PREMALIGNANT CERVICAL DISEASES — *William T. Creasman, MD, Durham, North Carolina*
31 HYPNOSIS — MAGIC OR QUACKERY? — *Ira L. Howell, MD, Denver, Colorado*
37 CARDIOVASCULAR MANIFESTATION OF MALIGNANCIES — *Alexander Schirger, MD, Rochester, Minnesota*

Organization

44 NEW MEXICO
44 COLORADO
45 WYOMING
48-49 PROGRAM OE MONTANA MEDICAL ASSOCIATION ANNUAL MEETING
50-51 PROGRAM OF WYOMING STATE MEDICAL SOCIETY ANNUAL MEETING
52-53 PROGRAM OF COLORADO MEDICAL SOCIETY ANNUAL MEETING
54-55 PROGRAM OF UTAH STATE MEDICAL ASSOCIATION ANNUAL MEETING
56 ROCKY MOUNTAIN MEDICAL CONFERENCE

OUR COVER PHOTO

The University of Colorado Medical Center today. Colorado General Hospital at right. Clinical Research Wing bridging E. Ninth Avenue at center.

Features

3 LETTERS TO THE EDITOR
45 MEDICAL SCHOOL NOTES
47 OBITUARIES
57 MEETINGS
59 OFFICERS PAGE
60 PUBLICATION RULES AND SUGGESTIONS TO AUTHORS
65 WANT ADS
67 INDEX TO ADVERTISERS

EDITORIAL BOARD

Colorado: Douglas W. Macomber, M.D., Scientific Editor, 1800 High St., Denver (Chairman of the Board); Carl H. McLauthlin, M.D., Assistant Scientific Editor, 510 Republic Bldg., Denver.

Montana: Gerald A. Diettert, M.D., Scientific Editor, 501 W. Broadway, P. O. Box 1307, Missoula, Montana 59801; L. Russell Hegland, Associate Editor, 1236 North 28th Street, Billings.

Nevada: Harry J. McKinnon, M.D., Scientific Editor, 3196 Maryland Pkwy. S., Las Vegas; Wesley W. Hall, M.D., Assistant Scientific Editor, 607 N. Arlington Ave., Reno; Nelson B. Neff, Associate Editor, 3660 Baker Lane, Reno.

New Mexico: Marcus J. Smith, M.D., Scientific Editor, Coronado Bldg., Santa Fe; William S. Curran, M.D., Assistant Scientific Editor, 920 Stanford NE, Albuquerque; Ralph R. Marshall, Associate Editor, 3010 Monte Vista Blvd., NE, Albuquerque.

Utah: Alan E. Lindsay, M.D., Scientific Edit 699 East South Temple, Salt Lake City; Ho W. Brewster, Associate Editor, 42 South Fif East Street, Salt Lake City.

Wyoming: Francis A. Barrett, M.D., Scienti Editor, 1616 E. 19th St., Cheyenne; Robe Smith, Associate Editor, P. O. Box 1387, Che enne.

Donald G. Derry, Managing Editor

Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations: It is the Official Journal of the Rocky Mountain Medical Conference and those medical societies who are represented on the Editorial Board listed above.

Advertising: National representative: State Journals West, 693 Sutt Street, San Francisco, California 94102.

Subscription: $7.00 per year in advance, postpaid in the United Stat and its possessions; single copy 60c plus postage. Subscription is i cluded in medical society dues of sponsoring state medical organiz tions.

Copyright: This Journal is copyright, 1971, by the Colorado Medi Society. Requests for permission to reproduce anything from t columns of this Journal should be addressed to the Journal Offi

Second class postage paid at Denver, Colorado

Dear Editor:

Dr. Osberg's squib concerning addicted medical men roused considerable interest in me. His estimate of one addict for every hundred doctors seems to me probably within reason. But to me it seems reasonable, however, only because it probably reflects the general rate of addiction in the population. The figure he cites of only one addict for every ten thousand among the general population multiplies out to ten thousand for every one hundred million, or twenty thousand total for this nation of ours. If this estimate is so, then for our middle size city of Albuquerque (about 250,000) that would make only twenty-five total in our city.

I am quite sure (although I have not asked him) that our local chief of police would heave a sigh of relief if all he had to contend with in the way of addict-oriented house robberies were robberies committed by only twenty-five addicts year in and year out. And I feel quite sure that his counterpart in New York City has more than seven hundred addicts to worry about in that great decaying metropolis. (I read of an estimated 60,000 of them in that city alone.)

Long ago, our professor of Pharmacology, the late great Reid Hunt at Harvard, sort of jolted us in the fall of 1926, when he inveighed against the Harrison Narcotic Law and accused that law of creating addicts. His estimate, in 1927, was almost one addict for every hundred persons in the U.S. Certain individuals in the circles dedicated to the enforcement of the narcotics laws are not known for their fondness for doctors, nor for the endeavor of the medical profession in general to regard the narcotic problem as a medical one, rather than one for policemen, and they tend to quote figures that might make one think that we all have to have a daily "fix." This comes out, for Albuquerque, to about two in our profession being addicts. That is quite possible, but to say that in this middle sized city there are only twenty-seven addicts total, and two of them doctors, calls for a bit of investigating!

Edward Parnall, MD

Ulcer Relief!

Dicarbosil®
ANTACID

Your ulcer patients and others will confirm it. Specify DICARBOSIL 144's—144 tablets in 12 rolls.

ARCH LABORATORIES
319 South Fourth Street, St. Louis, Missouri 63102

You Can Order
REPRINTS

of any feature or advertisement appearing in

The Rocky Mountain Medical Journal.

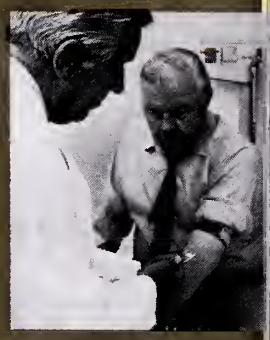
Orders must be placed within 15 days after date of publication. Minimum charge applies for 100 copies or less.

The cost is very reasonable.

For further information write to—

The Rocky Mountain Medical Journal
1809 East 18th Avenue
Denver, Colorado 80218

in stable adult diabetes, if diet alone fails...



start with DBI®-TD (phenformin HCl)

timed-disintegration capsules 50 mg.

A Distinctive Oral Hypoglycemic

---

a biguanide... not a sulfonylurea

Lowers elevated blood sugar without increasing endogenous insulin secretion.

Probably, secondary to its hypoglycemic effect, decreases insulin oversecretion. This may help to reduce lipogenesis and facilitate lipolysis, which may account for the clinically reported loss of excess body weight and lowering of elevated serum cholesterol levels in overweight, hypercholesteremic, stable adult diabetics unresponsive to diet alone.

DBI®-TD
(phenformin HCl)
timed-disintegration capsules 50 mg.

lowers elevated blood sugar

How to prescribe DBI®-TD (phenformin HCl)

To start with DBI-TD

Week 1 1 capsule with breakfast may be effective, or a second capsule may be given with the evening meal.

Week 2 Continue effective DBI-TD dosage. If necessary, add an additional capsule to the A.M. or P.M. dose.

Thereafter Continue effective DBI-TD dosage.

To transfer from sulfonylurea therapy to DBI-TD alone: The first week, withdraw sulfonylurea; start with DBI-TD as indicated in the chart.

To transfer from sulfonylurea therapy to combined therapy with DBI-TD: The first week, continue dosage of sulfonylurea; add DBI-TD as indicated in the chart. When effective regulation of diabetes is attained, sulfonylurea may be reduced and/or withdrawn.

Indications: Stable adult diabetes mellitus; sulfonylurea failures, primary and secondary. **Contraindications:** Diabetes mellitus that can be regulated by diet alone; juvenile diabetes that is uncomplicated and well regulated on insulin; acute complications of diabetes (metabolic acidosis, coma, infection, gangrene); surgery; severe hepatic disease; renal disease with uremia; cardiovascular collapse, after disease states associated with hypoxemia. **Warning:** Use during pregnancy is to be avoided. Until adequate data on the effects of DBI on the human fetus are available, such use can be considered experimental. **Precautions: Starvation Ketosis,** which must be differentiated from "insulin lack" ketosis, and is characterized by ketonuria in spite of relatively normal blood and urine sugar, may result from excessive DBI therapy, excessive insulin reduction or insufficient carbohydrate intake. Adjustment of DBI-TD or insulin dosage, or supplying carbohydrates, alleviates this state. DO NOT GIVE INSULIN WITHOUT FIRST CHECKING BLOOD AND URINE SUGARS. **Lactic Acidosis:** DBI is not recommended in the presence of azotemia or in any clinical situation that predisposes to sustained hypotension that could lead to lactic acidosis. To differentiate lactic acidosis from ketoacidosis, it is recommended that periodic determinations of ketones in the blood and urine be made in diabetics previously stabilized on DBI, or DBI and insulin, who have become unstable. If electrolyte imbalance is suspected, periodic determinations should also be made of electrolytes, pH and the lactate-pyruvate ratio. DBI should be withdrawn and insulin, when required, and other corrective measures instituted immediately upon the appearance of any metabolic acidosis. **Hypoglycemia:** Although hypoglycemic reactions are rare when DBI is used alone, every precaution should be observed during the dosage adjustment period particularly when insulin or a sulfonylurea has been given in combination with DBI. **Adverse Reactions:** Principally gastrointestinal, occurring more often at higher dosage levels; unpleasant metallic taste, continuing to anorexia, nausea and, less frequently, vomiting and diarrhea. Reduce dosage at first sign of these symptoms. In case of vomiting, DBI should be immediately withdrawn. Although rare, urticaria and gastrointestinal symptoms following excessive alcohol intake have been reported. **Dosage:** 1 to 3 DBI-TD 50 mg. capsules daily. **FSN 6505-724-6331. Also Available:** DBI tablets 25 mg. **Supplied:** Bottles of 100 and 1000.

USV PHARMACEUTICAL CORP., Tuckahoe, N.Y. 10707 USV

Thorazine®
brand of chlorpromazine
versatility
quality
experience
NOW THERE'S PRICE
Smith Kline & French Laboratories SK&F

Picture of low back pain

treated with Parafon Forte® TABLETS

Paraflex® (chlorzoxazone)* 250 mg.
Tylenol® (acetaminophen) 300 mg.

'arafon Forte tablets help to relieve pain, estore mobility... stop pain-spasm feedback

lere is why. PARAFON FORTE provides:

nonsalicylate analgesic equal to aspirin for relief of ain,[1,2] yet unlikely to cause the gastric irritation[2,3] or in-reased bleeding time[4] associated with aspirin therapy.

nd a skeletal muscle relaxant shown in extensive clinical tudies to be useful in a variety of low back disorders[5-7] .but which is not an antihistamine or tranquilizer deriv-tive and is unlikely to produce a tranquilizing or seda-ive effect.[8]

'rescribe PARAFON FORTE for effective spasmolysis and nalgesia in acute sprains, strains and myalgias of the ower back, including acute exacerbations of chronic con-itions. Your patients will appreciate the restored comfort nd freedom of movement it usually provides.

Contraindications: Sensitivity to either component. ***Warnings:*** *Usage in Pregnancy*—Use in woman of child-bearing potential only when potential benefits outweigh possible risks. ***Precautions:*** Exercise caution in patients with known allergies or history of drug allergies. If a sensitivity reaction or signs or symptoms suggestive of liver dysfunction are observed, the drug should be stopped. ***Adverse Reactions:*** Occasionally, drowsiness, dizziness, lightheadedness, malaise, overstimulation or gastrointestinal disturbances may be noted; rarely, allergic-type skin rashes, petechiae, ecchymoses, angioneurotic edema or anaphylactic reactions. In rare instances, *Paraflex* (chlorzoxazone) may possibly have been associated with gastrointestinal bleeding. While *Paraflex* (chlorzoxazone) and chlorzoxazone-containing products have been suspected as being the cause of hepatic toxicity in approximately eighteen patients, it was not possible to state that the dysfunction was or was not drug induced. ***Usual Adult Dosage:*** Two tablets q.i.d. ***Supplied:*** Scored, light green tablets, imprinted "McNEIL" —bottles of 100.

References: **1.** Batterman, R. C., and Grossman, A. J.: Fed. Proc. *14*:316, 1955. **2.** Goodman, L. S., and Gilman, A., ed.: The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970. **3.** Vickers, F. N.: Gastroint. Endosc. *14*:94, 1967. **4.** Mielke, C. H., Jr., and Britten, A. F. H.: New Engl. J. Med. *282*:1270, 1970 (Corresp.). **5.** Kestler, O. C., and Gyurik, J.: Industr. Med. Surg. *21*:372, 1962. **6.** Forster, S., et al.: Amer. J. Orthop. *2*:285, 1960. **7.** Data on file, McNeil Laboratories, Inc. **8.** Friend, D. G.: Clin. Pharmacol. Ther. *5*:871, 1964.

*U.S. PATENT NO. 2,895,877

NEIL LABORATORIES, INC., FT. WASHINGTON, PA. 19034

McNEIL

Now available for your prescribing needs

Cordran® Tape

Flurandrenolide Tape (4 mcg. per sq. cm.)

Additional information available upon request • Eli Lilly and Company, Indianapolis, Indiana 46206

000121

Lilly

WE LOOK TO THE American Medical News for timely comment on the national medical picture from the great vantage point of the AMA. Under the above title in the News of June 28 appeared the following by Dr. Alfred P. Ingegno, Editor of the Bulletin of the Medical Society of the County of Kings and the Academy of Medicine of Brooklyn:

"Why Costs are Rising"

The **health care cost** pickle we find ourselves in has some interesting aspects. For instance, there's the startling effect that really paying in full for health care has on society, its planners, and its politicians. As long as the medical profession shouldered a heavy burden of charitable care in wards, clinics, and private practice (without complaint and for generations, be it said) **much of what medical care should actually cost remained inapparent.** Now that, by public decision, all medical services have become inalienable rights to be paid for in full and without any stigma of charity, the realistic demands on the public purse (governmental or otherwise) have seemed too much to bear.

But it wasn't just the medical profession that helped create the illusion of good medical care cheap. Hospitals were even more culpable than the charitable doctors. Except, the charity that hospitals dispensed was a by-product of the sweat of their grossly underpaid hospital workers, nurses, and house staffs. Even then there were year-end deficits, in no small part due to the meager and reluctant payments the public (through its governmental agencies) was willing to contribute to the care of the indigent sick. Fortunately there were philanthropists on the hospital governing bodies or in the community who took up the slack.

But the **philanthropists are gone,** government taxation has seen to that. The **exploited hospital workers are gone,** professional and non-professional alike. Their associations and unions have seen to that. What seems like an enormous bulge in their salaries is after all nothing more than a long overdue catching up with the rest of the economy. It's a fact of life that cannot be reversed by loud wailing over cost. Most of what **hospitals pay out** is for the services of such **personnel**. And a great part of the remaining costs is for **supplies, equipment,** and advances in **facilities** and **technology** that hospitals need to do the job the public demands of them.

It all adds up to this: Good medical care is not now cheap, it never has been cheap, and it never will be cheap. Its high costs used to be paid for in part by dollars, in part by the voluntary charity of doctors, and the involuntary **charity of society's exploited hospital personnel.** This gave the illusion of cheapness.

That illusion has now been stripped away. All must be paid for in dollars, and **fairly, without charity and as a right.** That's what the public posture is supposed to be. It remains to be seen whether the needed money will be put where the mouths are, or whether the gullible will continue to dance to the tune of the pied pipers of good medical care cheap.

Our first impulse was simply to comment, editorially, upon the above. However, it is so pointed and undeniably true that it could not be trimmed without damage to its keen insight into one of our greatest problems. It literally says that we are now lying in a bed which our profession helped to make. We as a profession, the people of America, our Government and institutions are stuck with it. This being the case, and since it is irreversible, let's get with it and stay there until realistic and workable answers are found!

Adequate Medical Care and its Distribution — No Simple Answer

OUR EDITORIAL OFFICE has received a Letter to the Editor criticizing the editorial entitled "Medical Care — the Political Pawn" in the May issue of the *Rocky Mountain Medical Journal*. It is over the signature of Dr. P. G. Cornish III of Albuquerque, New Mexico:

The unsigned editorial in the May, 1971, issue of the *Rocky Mountain Medical Journal* contains in its final paragraph statements and figures to perpetuate a myth in regard to medical manpower. To refute your statements, I would like to quote from an article in the New York Times of April 1, 1971, by Elliot L. Richardson, Secretary of Health, Education and Welfare. "Myth: There is a gross shortage of doctors in America. In fact, we have one of the highest ratios of doctors per capita in the world, and the number of physicians is growing at a rate faster than the population. The basic problem is maldistribution. There are too few doctors in the ghettos and rural America in the primary care discipline such as general practice and pediatrics while there is no real shortage of doctors in suburban practices or in certain specialties like surgery. To meet this paradox of scarcity amid plentitude, the administration has proposed incentives to bring doctors to the areas and types of practice where they are most needed."

It is unfortunate that editorialists and others speaking for the medical profession tend to continue in promoting these misconceptions. It would be far better to work toward redistributing the physician population to better meet these medical care needs than to attempt to create more short-order health care personnel. Many physicians are not at all involved in patient care or are only on the periphery of this. Exaggerated examples of such maldistribution are evident in the ratio of physicians to students in some of the new southwestern medical schools. The answer to this problem is not creating new physicians but to make better, more efficient use of the physician population we have and to involve more academic physicians in direct patient care.

We agree with what Mr. Richardson has said but take this opportunity of stating that our suggestion of starting at the beginning and turning out more doctors was set forth only as *one* of the answers for providing adequate medical care for the American people—most certainly not *the* answer. It is true we have one of the highest ratios of doctors per capita in the world. However, only one of the problems is maldistribution. In our opinion, there are many basic problems and we do not agree with Secretary Richardson that maldistribution is, as he says, *the* basic problem. The American people are demanding more and more medical care and they have the means through their votes, the unions, and employers' health benefit plans to enforce their demands.

Let us confess that the editorial in question was incomplete, about a column and one-half long. Had all of the space in the May issue been devoted to medical care for Americans, all of the pertinent questions and answers could not have been discussed. We are grateful for the letter and hope that more of our readers will thus express themselves.

Laparoscopy in gynecology

Tibor Engel, MD, Robert A. Reid, MD, and Horace E. Thompson, MD, Denver

The laparoscope has recently been improved as to optics, light source, and achievement of pneumoperitoneum. It has become a useful tool for diagnostic purposes and for minor surgical procedures in gynecology.

RECENTLY THERE HAS BEEN great interest by gynecologists in the use of laparoscopy as a diagnostic tool and for performance of minor surgical procedures. Indeed, its popularity seems to have surpassed culdoscopy in many institutions. It is the purpose of this report to share our experience with this technic, to stress the areas which we believe are most benefitted by its use, and to point out some hazards which can arise from this procedure.

Historical Considerations

An elaborate history of laparoscopy is presented in the excellent book by Steptoe.[1] Some of the highlights are summarized here. Credit for the earliest use of laparoscopy is given to Kelling in Germany in 1901 when the peritoneal cavity of a dog was visualized with a modified cystoscope. Jacobaeus in Germany in 1910 was the first to use this technic in humans, and it was first used in the United States by Bernheim in 1911. The technic soon became widely used in Europe, and the first large series in the United States was reported by Ruddock in 1937.

It was with the advent of the fibre-optic light system in the 1950's that laparoscopy achieved its present popularity in the United States. The procedure could now be carried out with a cold, high intensity light which obviated thermal injury to sensitive abdominal organs. Then came a rapid evolution of improved instrumentation, including those used in establishing a pneumoperitoneum, instruments for biopsy, and those for tubal cautery and division.

Laparoscopy has now assumed a secure position as a useful diagnostic and therapeutic tool in the hands of gynecologists.

Materials and Methods

The laparoscope and ancillary instruments we have employed are manufactured by the Richard Wolf Company, Knittlingen, West Germany, and distributed in the United States by the Eder Instrument Company of Chicago, Illinois. The light source, ACMI Double Power Fiber optic routine and photographic light supply unit (FCB-1000), is manufactured by the American Cystoscope Makers, Inc., Pelham Manor, New York. The pneumoperitoneum control instrument is the Wisap CO_2—Pneu Automatic Insufflator, after Semm, manufactured in Munich, Germany and distributed by the Eder Instrument Company. This insufflator delivers CO_2 into the peritoneal cavity at a flow rate of 1L per minute at approximately 20 mm Hg pressure.

Photographs are taken with a Nikon FTN camera and a 105 mm lens. A special adapter was made to adapt the lens to the laparoscope. The film used is High Speed Ektachrome—Type B pushed to a speed of 500

*Presented to the Colorado Medical Society Annual Meeting, Colorado Springs, Sept. 1970. From the Department of Obstetrics and Gynecology, Denver General Hospital, Denver, Colorado. Photography done by Stephen O'Connor and Robert Reid, M.D.

A.S.A. Lens is focused to infinity. Exposure is determined by the color of the tissue being photographed and the distance between the end of the scope and the tissue. Generally an exposure of 1/30 sec.—1/60 sec. at f2.5 is used. The exposure, of course, is determined by the light source used. In this case the light source was an A.C.M.I. previously described.

Procedure

The patient is given general anesthesia, placed in low knee stirrups, with the hips not flexed. Examination under anesthesia is carried out and a tenaculum is placed on the anterior lip of the cervix. If the procedure is done for infertility a Kahn cannula can be placed in the cervix, through which methylene blue is instilled while the operator watches through the laparoscope for spill from the fallopian tubes.

The patient's abdomen is then prepared and draped as if for laparotomy. A one-half inch elliptical incision is made in the inferior fold of the umbilicus and carried to the fascia. A Verres cannula is then inserted into the peritoneal cavity for CO_2 insufflation. This instrument is unique in that it consists of a blunt trocar 2 mm in diameter which juts in front of a sharp needle-like sleeve. The sleeve works on a spring mechanism such that if the trocar hits tissue of little resilience such as bowel it merely pushes it away. Should it encounter resistance, however, the needle juts forward and pierces the tissue. One can ascertain that the peritoneal cavity has been entered by several methods. One may first inject 5 or 10 cc of air with a syringe to feel for resistance to the injection. Secondly, the CO_2 should flow freely at a low pressure, 20 mm Hg. Approximately 4L of CO_2 are insufflated while the patient is in steep Trendelenburg position. The 10 mm trocar is then introduced into the abdominal cavity and the laparoscope inserted through its sleeve.

A secondary stab wound, ¼ inch, is made in the right or left lower quadrant of the abdomen and the secondary trocar, 6 mm in diameter is introduced under direct vision. The epigastric vessels may be avoided by first transilluminating the abdominal wall with the laparoscope. Biopsy forceps, probes, and the tubal ligation instrument may be introduced through the secondary incision.

TABLE 1
INDICATIONS

Infertility
Chronic Pelvic Pain
Chromosomal and Endocrine Problems
Suspected Ectopic Pregnancy
Pelvic Masses
Tubal Sterilization

When the desired procedure has been accomplished the trocars are removed after the CO_2 has been expelled. Sutures are placed in the skin and the patient may return to her normal function as soon as recovery from anesthesia is complete. She may be discharged from the hospital that same evening or the following morning.

For tubal sterilizations the Bovie unit should be set at a moderate cauterizing current of 35 units.

Indications

The indications for laparoscopy are listed in Table 1. Two areas deserve special comment. The first is tubal sterilization. With ecological considerations rising to public attention in recent years no subject has received more attention than the population explosion. The evidence of population excess is all around us in the form of air and water pollution, industrial fallout, crowded cities and their unique urban problems. For this reason more and more people are presenting themselves to private physicians and hospital clinics for voluntary sterilization. It is important that we have a method of tubal sterilization which can be done rapidly, has a low morbidity and a short hospital stay. Tubal ligation by laproscope can fill some of this need. The procedure can be done in 30 minutes or less; the patients recover quickly with little or no post-operative discomfort, and can be discharged from the hospital the same day or following morning. Indeed, this has been done by some as an outpatient procedure.[2]

The other indication which needs specific comment is infertility. It is obvious that laparoscopy will not replace the usual infertility work-up which includes assessment of ovulation, adequacy of sperm and evaluation

TABLE 2
CONTRAINDICATIONS

Certain Previous Laparotomies
Cardiopulmonary Disease
Acute Surgical Abdomen
Any Contraindication to Surgery or Anesthesia

of uterine morphology and tubal patency by hysterosalpingography. However, laparoscopy can be used as a final diagnostic procedure in those many patients who are "normal" by the current usual criteria.

The other indications are easily understood. The use of laparoscopy in suspected ectopic pregnancy in our experience has saved several laparotomies. This represents a actual saving of operative time and hospital beds. The same is true for the diagnosis of pelvic masses, many of these being tubo-ovarian masses or functional cysts which may be treated conservatively. As a portion of the work-up of the very troublesome problem of chronic pelvic pain, laparoscopy offers reassurance to both patient and physician that significant organic pathology is not present. An easy method of ovarian biopsy for the diagnosis of chromosomal and endocrine problems is offered by the instrument.

Contraindications

Contraindications are listed in Table 2. If a previous laparotomy scar with its concomitant adhesions is in the area where the laparoscope trocar is to be inserted, the danger of perforation of bowel or an abdominal vessel is so great as to preclude the procedure. However, we have performed laparoscopy in patients with McBurney and Pfannensteil scars without difficulty.

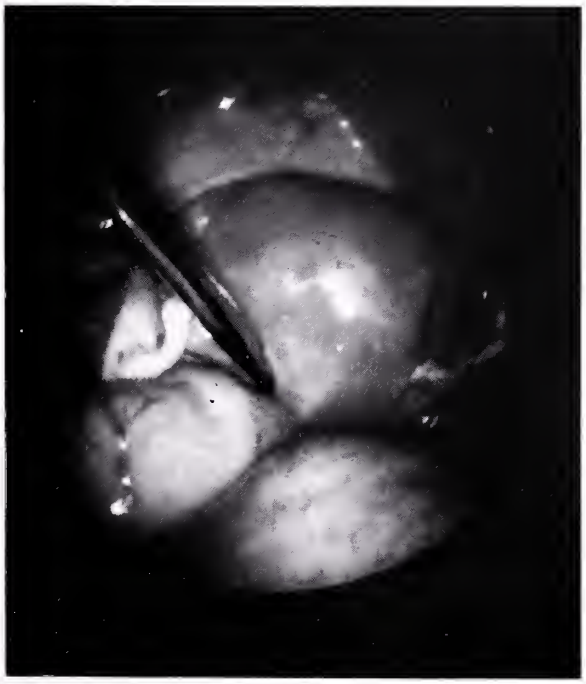


Fig. 1. Appearance of the fallopian tubes after cautery and resection.

TABLE 3
INDICATIONS FOR LAPAROSCOPY

Tubal Sterilization	17
Infertility	14
Pelvic Masses	4
Pelvic Pain	6
Possible Ectopic Pregnancy	5
Endocrine Indications	5
Endometriosis	2
TOTAL	53

Steep Trendelenberg position and the pressure of bowel and CO_2 against the diaphragm may overly compromise ventilation in patients with poor cardiopulmonary reserve, and the procedure is, therefore, contraindicated in these patients.

We feel patients with an acute abdomen need to be operated and that laparoscopy is only of academic interest.

Of course, any contraindication to general anesthesia or surgery would constitute a contraindication to laparoscopy.

Case Material

We have performed 53 laparoscopies during the past six months. The distribution of indications is shown in Table 3. Seventeen tubal sterilizations have been performed with an average total hospital stay of only two days for each patient. (Fig. 1) There have been two exceptions. One patient stayed four days because the left tube could not be visualized and a laparotomy had to be performed for ligation of this tube. The second case was a 325 pound patient whose laparoscopy was performed through a 3 cm midline incision which was carried to the fascia, from which point the laparoscopy was carried out. This patient was observed an extra day because of the unusual circumstances of her procedure.

Laparoscopy was performed for the diagnosis of possible ectopic pregnancy in five cases. In only one case was an ectopic pregnancy actually found and four patients were thus spared needless laparotomy. Cases felt

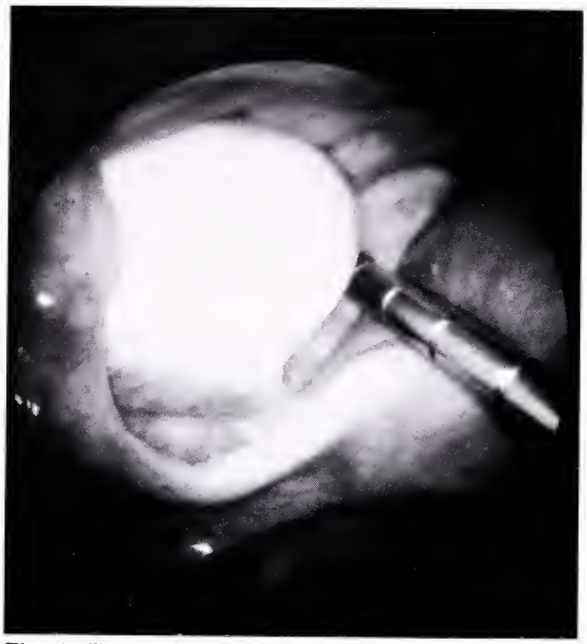


Fig. 2. Typical Stein-Leventhal ovary.

to be obviously indicative of ectopic pregnancy were not subjected to laparoscopy.

Six patients underwent laparoscopy as part of their work-up for pelvic pain. Findings included adhesions in two patients, pelvic inflammatory disease in two others, and no pathology whatsoever in the remaining two patients. In all cases this information was felt to be very helpful in management and none underwent unnecessary laparotomy.

Two patients underwent laparoscopy with a pre-operative diagnosis of endometriosis. Hormonal therapy was anticipated in these patients. However, filmy adhesions were found in one patient and no pathology was found in the other. Thus, an extensive course of hormonal suppressive therapy was averted.

Five patients underwent the procedure as part of the evaluation for primary or secondary amenorrhea. Three patients had completely normal ovaries by visualization and/or biopsy, and two patients were found to have the typical polycystic, thickly encapsulated ovaries of the Stein-Leventhal syndrome. (Fig. 2) Infertility was the indication for 14 patients. In nine, (Fig. 3) peritubal adhesions were found. Four had completely normal pelvic organs. There was a technical failure in one obese patient. In each case methylene blue was instilled with a Kahn cannula while evidence of spill was

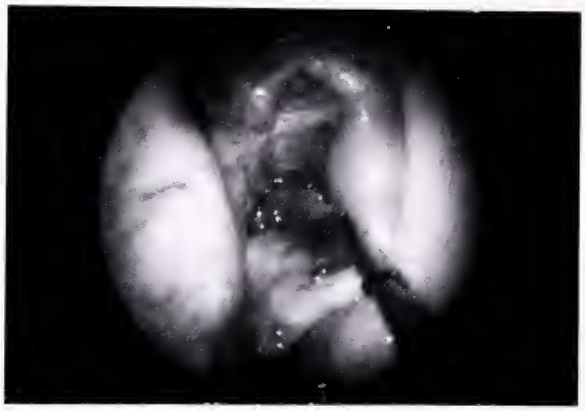


Fig. 3. Hydrosalpinx seen through the laparoscope.

sought through the laparoscope. On the basis of these findings laparotomy for tuboplasty and lysis of adhesions was performed in nine patients. Five patients were felt to have damage too severe to be aided surgically and thus were spared laparotomy on the basis of the laparoscopic findings.

Complications

Table 4 lists the complications reported throughout the world literature. Perforation of a viscus has been reported and is much more common in cases in which there are adhesions of the bowel to the abdominal wall. This would most likely occur during the insertion of the initial trocar which is done more or less blindly. However, the secondary trocar is inserted under direct vision (as indicated previously) and bowel injury can be prevented. Hemorrhage can occur by the piercing of a major intra-abdominal vessel. However, proper angulation of the trocar should avoid accidental perforation of the aorta or vena cava, which could bring disastrous results. Abdominal vessels can be avoided by transilluminating the abdominal wall prior to the secondary incision as pointed out previously. Establishment of a pneumoperitoneum can be potentially hazardous. Embolism has been reported because

TABLE 4
COMPLICATIONS

Perforation of Viscus
Hemorrhage
Subcutaneous Emphysema
Embolism
Infection
Death:
- Anesthesia
- Hemorrhage
- Embolism
- Cardiac Arrest

of intravenous CO_2 injection with ensuing cardiac arrest. The patient was placed in the left lateral decubitus position and was successfully resuscitated.[3] Post-operative complications include superficial incisional infections, and death from anesthetic causes, hemorrhage, embolism, and cardiac arrest. Cardiac arrhythimas and cardiac arrest have been reported when the pneumoperitoneum was accomplished too rapidly or under excessive pressure, or when ventilation was not properly assured by the anesthesiologist with resultant hypercarbia and cardiac abnormality. Placing the patient on an automatic ventilator will reduce the hazards of hypercarbia.

In the 53 cases we have performed only one major complication has occurred. During a tubal cauterization the operator received a jolt of electric current from an improperly calibrated Bovie machine and dropped the instrument. Because he was not controlling the foot pedal himself, the current continued momentarily after the instrument was dropped. Although there was no apparent damage at the time, and the procedure was completed without difficulty, one week later the patient was readmitted with an acute surgical abdomen and was found to have a tiny perforation in the small bowel, which probably occurred at laparoscopy. The patient underwent a bowel resection and has subsequently done well. It is strongly suggested that the operator control the electric current personally and that the Bovie machine be properly calibrated.

Discussion

If laparoscopy is to have merit then it must offer advantages over traditional methods of management. It must be demonstrated to decrease patient morbidity, save hospital bed space, save physician time and be a useful diagnostic tool. We feel the technic accomplishes all these things. Seventeen abdominal tubal ligations at an average hospital stay of four days each would be a total of 68 days. Yet in our series thus far the average stay was only two days for a total of 34 days, a saving of 34 hospital days. As we gained skill in the technic, operative time was equal to or less than that required for abdominal or vaginal tubal ligation.

The question of the effectiveness of electro-coagulation of the tubes via laparoscopy has been raised. Liston[4] in England performed laparoscopic tubal electrocauterization in 760 patients. Nine of the patients from the series became pregnant after the operations. In five of these cases the operation had been performed in the luteal phase of the menstrual cycle, and the women were thought to have conceived before sterilization. Of the other four who became pregnant after the operation a patent tubal stump was noted at laparotomy in three patients. Three months after sterilization the fourth patient had a hysterosalpingogram which indicated bilateral occulusion. Eighteen months later she was found to have a ruptured tubal pregnancy at the sight of tubal diathermy. We performed a hysterosalpinogogram on one of our early tubal sterilizations at six weeks post-operation and noted a tubo-peritoneal fistula. Because of the possibility of incomplete eschar formation at the cautery site, we are now allowing a longer interval before follow-up hysterosalpingography. Studies on four subsequent patients in our series done at 12 weeks post operation have shown no

PUBLICATION PRINTING...

NEWSPAPERS • MAGAZINES
ANNUALS • QUARTERLIES
BOOKLETS • BROCHURES
REPORTS • ROSTERS • PROGRAMS
HANDBOOKS • CATALOGUES

•

EDITORIAL ASSISTANCE • BINDING
ART DEPARTMENT • MAILING

Publishers Press, Inc. / Monitor Publications

2177 W. 7th DENVER 892-0166

TABLE 5
ADVANTAGES OVER CULDOSCOPY

Easy Technic
Better View
Opportunity for Minor Surgical Procedures
Can be Performed when Culdoscopy is Contraindicated

Many patients have been spared needless laparotomy because of timely laparoscopy—whether the indication was pain, pelvic mass, or possible ectopic pregnancy. The benefits to the patient in terms of costs and morbidity is incalculable.

Laparoscopy has some distinct advantages over culdoscopy, the other primary method of pelvic endoscopy (Table 5). Laparoscopy is felt by us to be an easier technic. There is no question that the view of the pelvic organs is vastly superior. In addition laparoscopy offers the capability of performing minor surgical procedures such as tubal ligations. Finally laparoscopy can be performed in many instances when culdoscopy is contra-indicated such as in the face of previous vaginal surgery, cul-de-sac masses, despite fixed retroversion of the uterus, in the presence of anomalous genitalia and in the presence of vaginitis.

Summary

It is our conclusion after using the laparoscope in over 50 cases, and after reviewing the experience of others, that this instrument provides a remarkably useful diagnostic tool for many gynecologic problems, and can easily become a key weapon in our battle for hospital beds and operating time. Both in diagnostic areas and in the realm of tubal sterilization, laparoscopy can be done with minimum patient morbidity and total expense. The technic can be easily learned and is safe in experienced hands. We believe that laparoscopy has surpassed culdoscopy as a gynecologic tool. •

REFERENCES

[1] Steptoe, P. C.: Laparoscopy in Gynecology, Livingston, London, 1967.
[2] Wheeless, C. R.: Outpatient Tubal Sterilzation. Obstet. Gynec., 36:208-11, August, 1970.
[3] OB-Gyn Collected Letters, Series XI—p. 51, April 1, 1970.
[4] Liston, W. A., Bradford, W., Downie, J., and Kerr, M. G.: Femal Sterilzation by Tubal Electrocoagulation under Laparoscopic Control. Lancet, 1:382-383, February 21, 1970.

For Insomnia... one capsule for the rest of the night

NOLUDAR® 300

(methyprylon)

Before prescribing, please consult complete product information, a summary of which follows:
INDICATION: Relief of insomnia of varied etiology.
CONTRAINDICATIONS: Patients with known hypersensitivity to the drug.
WARNINGS: Caution patients about combined effects with alcohol and other CNS depressants. Caution against hazardous occupations requiring complete mental alertness, such as operating machinery or driving a motor vehicle shortly after ingesting the drug.
Physical and Psychological Dependence: Physical and psychological dependence rarely reported. If withdrawal symptoms do occur they may resemble those associated with withdrawal of barbiturates and should be treated in the same fashion. Use caution in administering to individuals known to be addiction-prone or those whose history suggests they may increase the dosage on their own initiative. Repeat prescriptions should be under adequate medical supervision.
Usage in Pregnancy: Weigh potential benefits in pregnancy, during lactation, or in women of childbearing age against possible hazards to mother and child.
PRECAUTIONS: If sleeplessness is pain-related, an analgesic should also be prescribed. Perform periodic blood counts if used repeatedly or over prolonged periods. Total daily intake should not exceed 400 mg, as greater amounts do not significantly increase hypnotic benefits.
ADVERSE REACTIONS: At recommended dosages, there have been rare occurrences of morning drowsiness, dizziness, mild to moderate gastric upset (including diarrhea, esophagitis, nausea and vomiting), headache, paradoxical excitation and skin rash. There have been a very few isolated reports of neutropenia and thrombocytopenia; however, the evidence does not establish that these reactions are related to the drug.

Each capsule contains 300 mg of methyprylon.

ROCHE
ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

The girth control pill

Tepanil® Ten-tab®

(continuous release form)

(diethylpropion hydrochloride, N.F.)

When girth gets out of control, TEPANIL can provide sound support for the weight control program you recommend. TEPANIL reduces the appetite—patients enjoy food but eat less. Weight loss is significant—gradual—yet there is a relatively low incidence of CNS stimulation.

Contraindications: Concurrently with MAO inhibitors, in patients hypersensitive to this drug; in emotionally unstable patients susceptible to drug abuse.

Warning: Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

Adverse Reactions: Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence. As is characteristic of sympathomimetic agents, it may occasionally cause *CNS effects* such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported. Sympathomimetic *cardiovascular effects* reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others. *Allergic phenomena* reported include such conditions as rash, urticaria, ecchymosis, and erythema. *Gastraintestinal effects* such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosage forms: TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL: One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

T-107/4/71/U S PATENT NO. 3,001,910

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Painful night leg cramps...

unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

One thing patients can sleep without, particularly patients with chronic disease conditions such as arthritis, diabetes or PVD, is painful night leg cramps. Although seldom the presenting complaint, night leg cramps can tie your patients up in painful knots. Now, just one tablet of QUINAMM at bedtime can usually bring an end to shattered sleep and needless suffering. Your patients will sleep restfully—gratefully—with QUINAMM, specific therapy to prevent painful night leg cramps.

Prescribing Information—Composition: Each white, beveled, compressed tablet contains: Quinine sulfate, 260 mg., Aminophylline, 195 mg. **Indications:** For the prevention and treatment of nocturnal and recumbency leg muscle cramps, including those associated with arthritis, diabetes, varicose veins, thrombophlebitis, arteriosclerosis and static foot deformities. **Contraindications:** QUINAMM is contraindicated in pregnancy because of its quinine content. **Precautions/Adverse Reactions:** Aminophylline may produce intestinal cramps in some instances, and quinine may produce symptoms of cinchonism, such as tinnitus, dizziness, and gastrointestinal disturbance. Discontinue use if ringing in the ears, deafness, skin rash, or visual disturbances occur. **Dosage:** One tablet upon retiring. Where necessary, dosage may be increased to one tablet following the evening meal and one tablet upon retiring. **Supplied:** Bottles of 100 and 500 tablets.

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Q103 2/71

Quinamm™
(quinine sulfate 260 mg., aminophylline 195 mg.)

Specific therapy for night leg cramps

Tracheal support in the treatment of emphysema*

W. Gerald Rainer, MD, James P. Newby, MD, and David Dirks, Denver

EXPIRATORY COLLAPSE of the trachea and main bronchi has been implicated by some as an important flow restrictive factor in obstructive lung disease.[1,2,3] Collapse is produced by invagination of the weakened, thinned out, posterior wall (pars membranacea) resulting from long standing cough and mural weakness. Because the central airways are easily accessible via thoracotomy, a surgical procedure to support the posterior tracheal wall to restore normal tracheal architecture and thus improve air flow has been devised and previously reported.[4] Twenty-three patients have undergone such a tracheal support procedure during the past seven years.

An analysis of the results of this approach as an adjunctive measure in the treatment of emphysema forms the basis for this report.

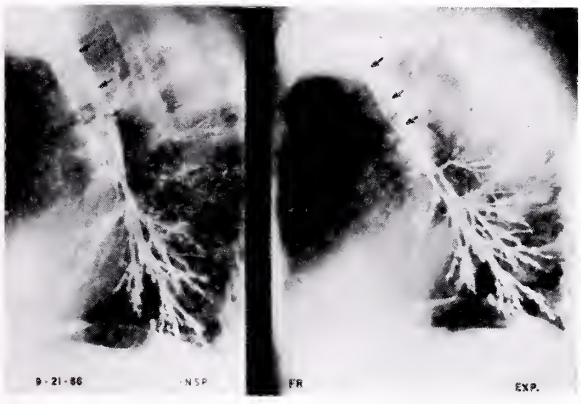


Fig. 1. Lateral projection bronchograms taken during peak inspiration and peak expiration. Arrows outline posterior (membranous) tracheal wall. Note extreme decrease in tracheal lumen during expiration.

*Presented at the Annual Meeting of The American Medical Association, Section on Diseases of the Chest, Chicago, June 24, 1970. Supported in part by the Thomas Moody Emphysema Research Fund and a grant from the North Central Colorado Tuberculosis and Respiratory Disease Association.

TABLE 1
CLINICAL AND LABORATORY CRITERIA USED IN EVALUATION OF TRACHEAL COLLAPSE

1) Tracheal "knock" on coughing (heard over episternal notch).
2) Severely diminished or absent expiratory breath sounds after emptying physiologic dead space.
3) "Notch" on expiratory curve of spirogram indicating abrupt change in flow rate of expired air.
4) Collapse of trachea as demonstrated by simple fluoroscopy (lateral projection).
5) Tracheal collapse shown by bronschoscopy and/or cinefluoro tracheo-bronchography.
6) Expiratory pressure gradient between lobar bronchi and upper thoracic trachea.

Clinical Material

From February 1963 to February 1970, tracheal support surgery was performed on 17 males and six females. Ages ranged from 36 to 69 years (average = 56 years). Evaluation of tracheal collapse was based on criteria outlined in Table 1 (see Fig. 1). All patients had been treated medically without sustained improvement. Eleven patients were totally incapacitated by obstructive lung disease. An original model (semicircumferential polyethylene) tracheal support was used in the first eight cases. A perforated polyethylene slab was sutured to the posterior tracheal wall in six cases, and the currently preferred dacron-reinforced silicone rubber tracheal support (Fig. 2) has been used in the last nine cases.

Previous reports have detailed the development and surgical technic of tracheal support.[4] The basic aim of tracheal support is to strengthen the tracheal wall by converting a flattened tubular structure with a wide, thin posterior wall into a normally-arched conduit. In essence, the prosthesis

supports the posterior wall in much the same fashion as the cartilaginous rings support the remainder of the wall. (Fig. 3.)

Results

Of the twenty-three cases operated upon, eleven have survived seven to eighty-four months (Average 52.5 months.) Of this group, five have shown sustained, significant improvement, three have shown sustained, moderate improvement, two are unchanged and one has been lost to follow-up. Of the twelve deaths in this series, four occurred within thirty days of surgery and are classified as hospital deaths. There have been eight late deaths. Causes of death are enumerated in Table 2. Average survival time in those patient who expired was 12.5 months.

Fifteen patients in the entire group had pulmonary function testing performed long enough after surgery to be meaningful. Using values derived from maximum breathing capacity (MBC) as indicative of pulmonary function, pre-operative and post-operative changes are shown in Table 3. Of interest is the observation that those patients with pre-operative MBC value of less than 30 liters per minute (L/min.) show the greatest increase after surgery, with one MBC value increasing 247 per cent and average increase for this entire group measuring 71 per cent. Patients in group 2 (MBC = 30-60 L/min.) and group 3 (MBC = 60 or more L/min.) showed average post-operative increases of 13 per cent and eight per cent respectively. Two patients in group 1 have shown the most dramatic and sustained improvement and salient features of their cases will be described briefly.

TABLE 2
CAUSES OF DEATH
TRACHEAL SUPPORT SURGERY

Hospital Deaths		4
Pulmonary Emboli	3	
Retained secretions	1	
Late deaths (after 1 month post-operative)		8
Perforation of prosthesis (early model)	3	
Myocardial infarction	2	
Gastro-intestinal hemorrhage	1	
Pulmonary Insufficiency	1	
Pneumonia	1	

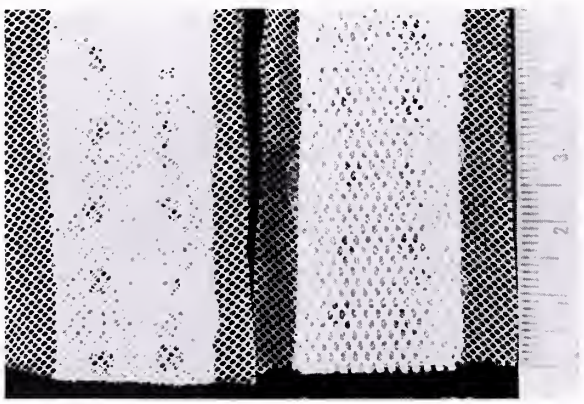


Fig. 2. Tracheal support, currently used model. Support is 60 mils thick and is composed of dacron-reinforced Silastic® (Dow-Corning, Midland, Michigan). Prosthesis can easily be trimmed to appropriate size at time of surgery.

CASE REPORTS

Case 1. A 50-year-old female was seen because of incapacitating obstructive pulmonary disease. She had a history of bronchial asthma during childhood. She had been unable to perform even light work for six months prior to surgery. In addition to constant dyspnea, she was subject to acute asphyxial attacks. Pre-operative MBC value was 18 L/min. Tracheal support surgery was performed on February 3, 1964. MBC determined 42 months after her surgery was 60 L/min. and she has been able to return to work.

Case 2. A 64-year-old man underwent tracheal support surgery on December 24, 1964 after being bedfast with continuous oxygen for six months during which time he required surgery for control of a bleeding duodenal ulcer. Pre-operative MBC was 12 L/min. and post-operative MBC value obtained 2½ months later was 42 L/min. He was able to return to half-time employment. Following an episode of pneumonia, his MBC dropped to 27 L/min. but increased to 34 L/min. over the next twenty-three months.

MBC values from those patients with serial studies over a meaningfully long enough period post-operatively are displayed in Fig. 4.

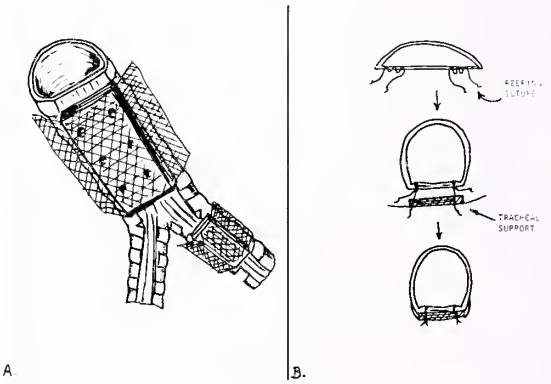


Fig. 3. Diagrammatic illustration of technique of tracheal support application. A. Relationship of support to posterior walls of trachea and right main bronchus. B. Cross-sectional diagrams showing suture placement in pars membranacea with use of support for reinforcement.

TABLE 3

GROUP*	NO. PATIENTS / NO. STUDIED	MAXIMUM BREATHING CAPACITY (MBC)			
		PRE-OP. RANGE (L./MIN.)**	POST-OP. RANGE (L./MIN.)	RANGE OF POST-OP. CHANGE (L./MIN.)	RANGE OF POST-OP. % CHANGE (%)
1	11 / 8	0 → 30	18 → 60	-5.0 → +42.0 M*** = +11.2	-19 → +247 M = +71
2	7 / 4	30 → 60	39 → 56	-1.0 → +13.0 M = +3.5	-2 → +33 M = +13
3	5 / 3	60 → ABOVE	72 → 112	**** -22.0 → +22.1 M = +2.0	-16 → +31 M = +8

*Groups defined by pre-op. range.
**L./MIN. = Liters per minute.
***M = median value.
****Includes one patient with a right upper lobectomy for malignant mesothelioma.

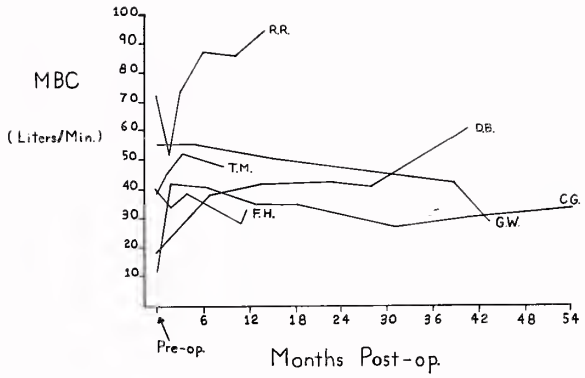


Fig. 4. Line graph representation of maximal breathing capacity (MBC) values for six patients studied. Four began with MBC values of less than 40 L/min. Case 1 in text is D.B. and Case 2 is C.G.

Discussion

The precise role of major airway collapse and its contribution to resistance to air flow have not been clearly defined. Herzog, et al.,[5] have shown by clinical and animal studies that the major airways may be responsible for "up to 90 per cent of the total flow resistance" in those patients with emphysema who show tracheobronchial collapse fluorographically. The incidence of significant tracheobronchial collapse in emphysema is not known but probably occurs in approximately 25-30 per cent of all patients with emphysema.

Until recently, studies to ascertain the degree of improvement of patients undergoing tracheal support have included patients operated upon during the early stages of support development.[6,7,8] With our current prosthesis, it is hoped that future studies will be more comparable and meaningful.

Because of the striking improvement seen in some patients with near terminal emphysema who underwent tracheal support surgery, further investigation into its effect on airflow and amelioration of pulmonary destruction is urged. It should be emphasized that this particular surgical technic be considered as a part of the overall approach to the treatment of emphysema.

Summary

1) The results of tracheal support surgery in the treatment of twenty-three patients with emphysema are presented.

2) Striking improvement has been seen in some cases af advanced emphysema following surgical support of the weakened posterior wall.

3) Further investigation into the significance of tracheobronchial collapse and its correction by surgical support is urged. •

ACKNOWLEDGMENTS

The help of Miss Helen Loverude in manuscript preparation and Mr. Fred Mazzulla in preparation of illustrations is gratefully acknowledged. Michael Newash, Dow Corning Institute for Aid to Medical Research, was most helpful in supplying materials for prosthetic support development.

REFERENCES

1 Herzog, H., and Nissen, R.: Erschlaffung und exspiratorische invagination des membranosen Teils der intrathorakalen Luftrohre und der Hauptbronchien als Ursache der asphyktischen Anfalle beim asthma bronchiale und bei der chronischen asthmoiden bronchitis des Lungenemphysems. Schweiz. Med. Wsch., 84:217, 1954.

2 Monod, O., and Raton, D.: Distension atonique trachéo-bronchique postérieure traitée par prothèse chirurgicale. J. Franc. de Med. et Chir. Thorac., 14:771, 1960.

3 Rainer, W. G., Hutchison, D., Newby, J. P., Hamstra, R., and Durrance, J.: Major airway collapsibility in the pathogenesis of obstructive emphysema. J. Thor. Cardiovasc. Surg., 46:559-567, 1963.

4 Rainer, W. G., Feiler, E. M., and Kelble, D. L.: Surgical technique of major airway support for pulmonary emphysema. Amer. J. Surg., 110:786-789, 1965.

5 Herzog, H., Keller, R., Maurer, W., Baumann, H. R., and Nadjafi, A.: Distribution of bronchial resistance in obstructive pulmonary diseases and in dogs with artificially induced tracheal collapse. Respiration, 25:361-394, 1968.

6 Herzog, H., and Rossetti, M.: Le traitement chirurgical des hypotonies trachéo-bronchiques. Jour. Franc. Med. Chir. Thorac., 20:643-663, 1966.

7 Huzly, A.: Greffe de la trachée selon Herzog-Nissen comme traitement de la dystonie trachéo-bronchique. Jour. Franc. Med. Chir. Thorac., 20:665-671, 1966.

8 Rainer, W. G., Newby, J. P., and Kelble, D. L.: Long term results of tracheal support surgery for emphysema. Dis. Chest, 53:765-772, 1968.

Herpes simplex encephalitis*

Carl R. Kjeldsberg, MD, Elizabeth H. Macintyre, MD, A. E. Vatter, PhD, and E. Lee Garlett, MD, Denver

The early diagnosis of herpes simplex encephalitis has become more than "just of academic interest."

HERPESVIRUS HOMINIS (herpes simplex virus) is one of the most common viral agents affecting man. The most frequent sites of its lesion are the skin and mucous membranes of the mouth and of the genital organs. Involvement of the central nervous system is considered to be rare. Review of the literature suggests, however, that the latter conclusion may be invalid and the true incidence much higher. Two main factors appear to contribute to this situation: (1) the sporadic nature of herpes encephalitis and (2) its protean manifestations. Recent developments of diagnostic technics and of anti-viral agents have made diagnosis in the live patient of more than academic interest. Necrotising herpes encephalitis carries a high mortality and morbidity rate. The viral agent can be destroyed and the disease process may be terminated by early diagnosis and therapy.

It is the purpose of this paper to discuss the problems inherent in diagnosis and therapy of herpes encephalitis and to illustrate these by considering a well substantiated case.

CASE REPORT

A 48-year-old white woman was admitted to the hospital on December 11, 1970 with seizures. The day before admission she had felt "flu coming on" and had been headachy and nauseated. The next morning she had a temperature of 101°F. When she got out of bed, the husband noted generalized muscle stiffening, staring gaze, and unresponsiveness for short periods. This was followed by a generalized seizure. Further convulsions ensued after hospitalization.

Physical examination at admission revealed a confused dysphasic woman who was awake but did not seem to understand commands. Her neck was supple. Cranial nerve examination was not remarkable within the limits of examination, but the optic fundi could not be visualized. The pupils were equal and reacted briskly. The eye movements were full. There was no facial asymmetry and the tongue was in the midline. All extremities moved well. The deep tendon reflexes were normal and symmetrical. A Babinski response was present on the right side.

A lumbar puncture was done. The opening pressure was very low and could not be measured. The fluid was clear and had 6 WBC/mm,^{3}, 1 fresh RBC/mm^3, 44 mg. per cent of protein, 100 mg/100 ml. of sugar, its VDRL was nonreactive, and a colloidal gold curve was normal. Her hemoglobin was 14.9 gm/100 ml. and the white blood count 18,000 with a normal differential count. Urinalysis was normal.

The day after admission she appeared to be more alert but had episodes of confusion. Chest x-ray, skull x-ray and a brain scan were normal. She was treated with anticonvulsants, intravenous fluids and steroids without any significant improvement. Two days later she was completely comatose and had fever of 104°F. The pupils were fixed and dilated and the corneal reflexes were absent. Intermittent positive pressure breathing was given every two hours by mask. The urine output greatly exceeded the input. Bacterial cultures of urine, blood and spinal fluid were negative. A repeat lumbar puncture done three days after admission revealed turbid fluid containing 131 WBC/mm^3 (100% mononuclear) 148 mg/100 ml protein and 88 mg/100 ml sugar. She remained comatose and expired 10 days after the onset of the illness. Autopsy was done 12 hours after death.

AUTOPSY FINDINGS. Except for aspiration pneumonia, significant pathology was limited to the central nervous system. There was no evidence of oral or genital herpes simplex lesions.

The brain weighed 1200 gm. It was gray-white and diffusely soft. Marked cerebral edema was present. The blood vessels of the brain were normal. Routine sections revealed areas of necrotic softening in the cortex of both temporal lobes, and small hemorrhages were seen in the basal ganglia bilaterally and in the pons. The white matter had a peculiar sticky consistency.

*From the Department of Pathology, General Rose Memorial Hospital, Denver, Colorado.
Supported in part by USPHS grant NB07983.

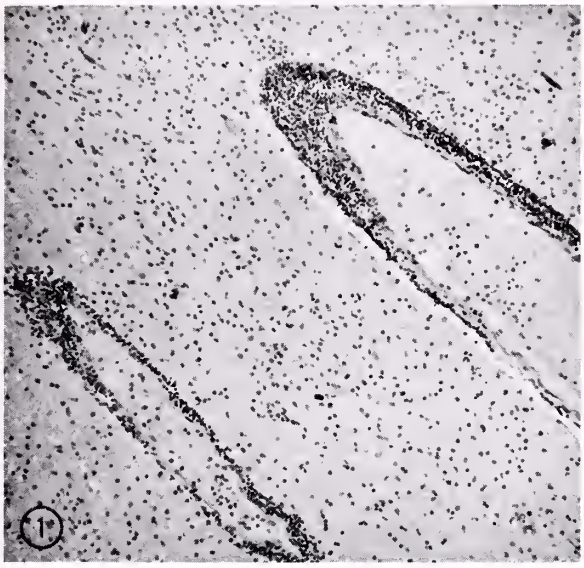


Fig. 1. Section from right temporal lobe showing perivascular cuffing composed of mononuclear cells. (H. E. Mag. x125)

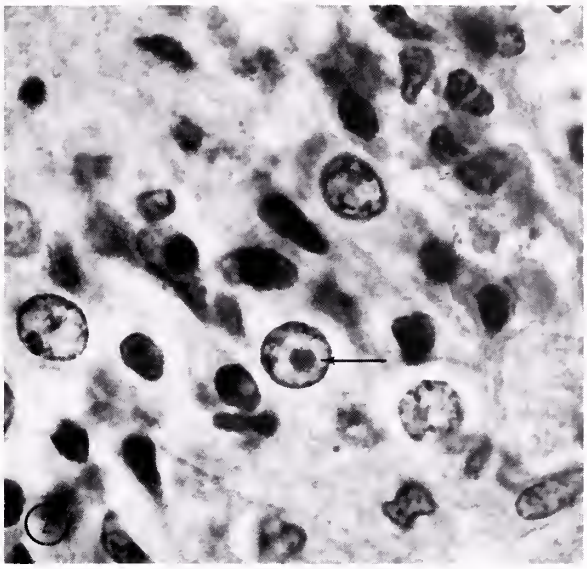


Fig. 2. Cowdry type A intranuclear inclusion body in an oligodendroglial cell. Section from left temporal lobe. (H. E. Mag. x1250)

The spinal cord appeared softer than usual, but otherwise no gross lesions were seen.

Microscopic examination of the brain revealed changes considered characteristic of viral encephalitis. These were perivascular cuffing by mononuclear cells (Fig. 1), glial nodules, paraventricular hemorrhagic extravasates, focal demyelination, focal necrotizing, thrombotic arteritis, focal diffuse infiltrates of macrophages and intranuclear Cowdry type A inclusion bodies in oligodendroglia and neurons (Fig. 2). The inclusion bodies were particularly abundant adjacent to necrotic areas in sections from the temporal lobes. Areas of necrosis were present in the supraoptic nucleus. The spinal cord revealed similar changes.

Herpesvirus hominis were cultured from sections of spinal cord and of both temporal lobes. Electron microscopy was subsequently done on tissue from both temporal lobes which had been fixed in formalin for approximately three months. This showed clusters of intranuclear virus particles which were morphologically identical to herpes virus (Fig. 3).

Discussion

This patient exhibited the typical features of a rapidly fatal encephalitis with sudden onset and short duration. Clinically she showed an acute, febrile illness with headache, confusion and convulsions, rapidly followed by coma and death. As such, the clinical manifestations of herpes simplex encephalitis are often indistinguishable from those induced by many other infectious agents.

For this patient two clinical features correlated well with the autopsy findings. One was the presence of staring, which the husband had noted early in the course of her illness. This is characteristic of temporal lobe lesions, and autopsy showed the major damage to be within the temporal lobes. The lesions in herpes simplex encephalitis are typically localized within the frontal and temporal lobes. Personality changes, memory defects and psychosis are early symptoms of the disease. When the lesion is unilateral there may be clinical and radiological evidence of an expanding lesion in the brain mimicking a tumor or an abscess. The other correlation was with the presence of necrosis

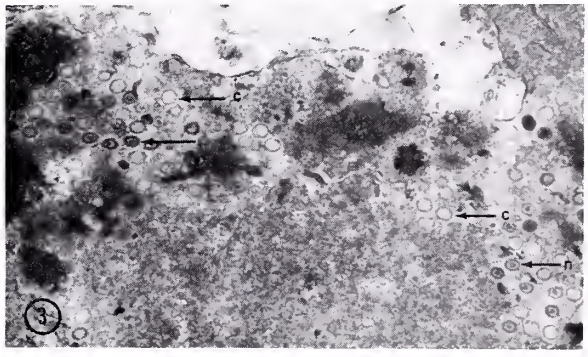


Fig. 3. Electron micrograph of a portion of an inclusion body, similar to that shown in figure 2, containing viruses (←——n) and empty capsids (←——c). The dark structure in the particle is the nucleic acid of the virus. (Mag. x60,000)

in the supraoptic nucleus and the clinical feature of marked sodium diuresis.

Until a few years ago the diagnosis of herpes simplex encephalitis was made only retrospectively. Recent reports[1,2,3] have described tests which can assist the physician in making an early diagnosis. Short of a cerebral biopsy a conclusive diagnosis of herpes simplex encephalitis cannot be made. A brain biopsy is now considered to be a relatively safe procedure similar to a liver or kidney biopsy. Miller and Ross[2] have obtained brain biopsy material by suction using a wide-bore brain cannula introduced through a burr hole. The brain biopsy specimen is divided and a small sterile, non-fixed specimen is sent immediately to the virology laboratory while the rest of the tissue is submitted for histologic examination. A presumptive diagnosis of herpes simplex encephalitis can be made by the histologic features of the tissue sections. It should be noted, however, that the histopathologic features of several different viral encephalitides are frequently indistinguishable one from another. Cowdry type A inclusion bodies (which were once thought to be specific for herpes simplex encephalitis) have been seen in subacute progressive encephalitis, cytomegalic inclusion disease, measles, chicken pox, yellow fever, herpes zoster and herpes virus simiae (B virus). Furthermore, intranuclear inclusions are not formed in all cases of herpes simplex encehpalitis.

A confirmed diagnosis can be made with the isolation of the specific virus in cultures. This generally requires 2-3 days. If virology studies are to be done on autopsy material, the tissue should be removed with sterile technic and rapidly frozen in order to preserve the virus. With the use of fluorescent antibody staining for herpes simplex virus antigen using fresh, unfixed brain biopsy tissue, diagnosis can be made within a few hours. It is important, however, that the respective laboratories are notified well in advance before the biopsy is done.

The spinal fluid is usually abnormal. Occasionally, however, it may be normal in the early stage of the disease as was the case in our patient. Leukocytosis (predominantly mononuclear cells), elevated protein and a normal sugar level are the usual findings. The virus is seldom recoverable from the spinal fluid.[4] Serological tests for herpes simplex antibody are of limited diagnostic value by themselves but they may give some information regarding the pathogenesis.

With the introduction of new antiviral agents the early diagnosis of herpes simplex encephalitis has become more than "just of academic interest." Notan et al.[5] reported six cases treated with intravenous idoxuridine (5-iodo-2'-deoxyuridine) four of whom are well. A few other[6,7,8] similar findings have been reported in the recent literature suggesting that intravenous idoxuridine is effective therapy for herpes simplex encephalitis. The toxic manifestations are usually moderate and reversible. If treatment is to be successful, however, the drug must be given in the initial stage of the disease. It is therefore essential that a correct diagnosis is made as early as possible. Since necrotizing herpes simplex is uniformly fatal if left untreated, a trial of anti-viral drugs would appear to be indicated in most instances.

Summary

With the introduction of new anti-viral agents an early diagnosis of herpes simplex encephalitis has become important. Short of a brain biopsy a conclusive diagnosis cannot be made. The biopsy material should be submitted both to the virology and the pathology laboratory. Viral cultures, immunofluorescent studies and histologic examination (including electronmicroscopy if possible) should then be done. •

REFERENCES

[1] MacCallum, F. O., Potter, J. M., and Edwards, D. H.: Early diagnosis of herpes-simplex encephalitis by brain biopsy. Lancet, 2:332, 1964.
[2] Miller, J. D., and Ross, D. A. C.: Encephalitis. A four year study. Lancet, 1:1121, 1968.
[3] Dudgeon, J. A.: Herpes encephalitis. II. Pathology of herpes encephalitis. Postgrad. Med. J., 45:386, 1969.
[4] Johnson, R. T. J., Olson, L. C., and Buescher, E. L.: Herpes simplex virus infections of the nervous system. Problems in laboratory diagnosis. Arch. Neurol., 18:260, 1968.
[5] Nolan, D. C., Carruthers, M. M., and Lerner, M.: Herpesvirus hominis encephalitis in Michigan. New Eng. J. Med., 282:10, 1970.
[6] Silk, B. R., and Roome, A. P. C. H.: Herpes encephalitis treated with intravenous idoxuridine. Lancet, 1:411, 1970.
[7] Goldman, B., Nahor, A., Braham, J., et al.: Herpes encephalitis treated with idoxuridine. Lancet, 2:155, 1970.
[8] Breeden, C., Hall, T. C., and Tyler, H. R.: Herpes simplex encephalitis treated with systemic 5-iodo-2'deoxyuridine. Ann. Int. Med., 65:100, 1966.

Psychosurgical treatment of neurosis

Harry R. Boyd, MD, and
Charles G. Freed, MD, Denver

Psychosurgery may prove to be beneficial in certain forms of neurosis which do not respond to more conservative forms of therapy.

In 1936, Egas Moniz[1] reported on the treatment of certain types of mental disorders by prefrontal lobotomy. Shortly thereafter, Freeman and Watts[2] modified and popularized the operation in this country. In the next two decades an astonishing number of patients were subjected to the operation or to one of its modifications. As experience accumulated, it became apparent that gross bilateral lesions in the frontal lobes produced undesirable side effects in a very significant number of patients. Many patients so treated were found to be apathetic, with loss of iniative, sometimes to the point of inattention to basic personal hygiene. In addition, epilepsy was seen in as many as 10 per cent of long term patients in some series. These sequellae, combined with the possibility of serious neurological deficit or death from hemorrhage, served to discredit the operation to a great extent.

This form of surgical treatment was not, however, entirely abandoned. Modifications to avoid the undesirable side effects were devised and pursued. It was demonstrated by many investigators that limited operations, particularly in the anteromedial quadrants of the frontal lobes, were likely to modify behavior patterns without personality defects. This appeared to be especially true in cases of psychoneurosis manifested by depression, anxiety-tension ststes, and obsessive-compulsive behavior. Some workers have felt that there are areas related to specific functions in the frontal lobes, destruction of which would likely relieve depression or obsessive-compulsive behavior. The prevailing opinion, however, is that there is no specific area in the frontal lobes, either cortical or sub-cortical, the destruction of which is necessary for a good result. Rather, it seems a certain minimal amount of frontal tissue destruction is necessary, and the precise location of the lesion is of secondary importance, provided that it is restricted to the antero-medial aspect of the lobe.

How the desired lesion is to be accomplished has remained a matter of surgical ingenuity. Knight,[3] after a large series of orbital undercutting procedures, has developed a steriotatic technic for the placement of radon seeds in the area of white matter overlying areas, 13 and 14 of the orbital cortex. Ransohoff[4] and others prefer an open operation, dividing the white matter of the medial one-half of each frontal lobe anterior to the tip of each lateral ventricle. Grantham,[5] in 1951, described a procedure wherein the antero-medial quadrant of each frontal lobe overlying the orbital cortex is destroyed by electrocautery, using an insulated electrode introduced through a burr hole in the skull.

In the past ten years, we have performed 65 operations for intractable psychoneurosis, utilizing a technic similar to that described by Grantham. The patients so treated were all referred by psychiatrists after prolonged treatment consisting of psychotherapy, drug therapy, and in many cases, shock therapy, with failure to improve. Psychosurgery has usually been done only as a last resort.

Operative Procedure

After the induction of general anesthesia, burr holes are made behind the hair line centered three cm. from the midline of the skull on either side. The dura is opened with a stellate incision and the dural edges are cauterized. A ventricular cannula is placed in the frontal horn of each lateral ventricle. Ten to 20 cc. of ventricular fluid is removed and replaced with air. The needles are then withdrawn and an electrode is placed in the antero-medial quadrant of each frontal lobe. The electrode is advanced until the orbital roof is encountered, and then withdrawn 1.5 cm., so as to be within the white matter of the brain. The electrode is insulated, except for its distal one c.m. Antero-posterior and lateral x-rays are then made. Adjustments in the electrode position are then made until each lies two cm. from the midline, 1.5 cm. from the orbital roof, and just anterior to the frontal horn of each lateral ventricle. When satisfactory position is obtained, the electrodes are connected to the Bovie electro-surgical unit. An electrolytic lesion is then made at a Bovie setting of 25 for a period of one minute. The electrodes are then withdrawn one cm., and an additional lesion is made for one minute on each side. This produces areas of tissue destruction approximately one cm. in diameter, and two cm. in height in each frontal lobe. This lesion lies just above the orbital cortex of Walker's area 13. The electrodes are then withdrawn and pieces of gelform are placed over each area of exposed cortex. A silicone plug is placed in each burr hole for cosmetic purposes, and the scalp is closed in two layers.

In the immediate postoperative period, the patients are sometimes confused. The confusion usually disappears by the fourth or fifth postoperative day. Occasionally the patient may exhibit some loss of affect and a lack of ambition. In our experience these phenonena clear within six weeks. There has been no operative mortality, although one patient who had been discharged from the hospital in good condition became comatose three weeks later and subsequently died. Postmortem examination revealed no bleeding in the operative site, and it was thought that she may have succomed to a drug overdose, although toxicological studies were unrevealing.

Results

Following the operative procedure, the patients were returned to the care of their psychiatrists. Significant improvement has been achieved in about 75 per cent of cases. Most of these patients have required little or no further psychiatric care. The best results have been achieved in patients suffering from depression or obsessive-compulsive neuroses. A history of temporary beneficial response to electro-shock therapy has been a good prognostic sign. In no case has the operative procedure produced the vacant mind so often seen with classical lobotomy operations. In one case of obsessive-compulsive neurosis a second operation produced a dramatic, and apparently permanent, improvement following relapse six months after the first operation. No cases of postoperative seizures have been observed.

Knight has summarized his extensive experience in over 750 cases with this limited form of psychosurgery as follows: "The position appears to be that this operation can do no harm, but it may do a very great deal of good, and it is hoped, therefore, that it may be accepted as a helpful adjunct to the work of a psychiatric team, providing a useful next stage in treatment which can be used with confidence when required after conservative measures reach an impasse in certain potentially curable cases."

Our experience with a small but highly selected group of patients, has been much the same as that of Knight and other workers who have used restricted forms of psychosurgery in the treatment of otherwise intractable forms of psychoneurosis. •

REFERENCES

[1] Moniz, E.: Tentatives operatoires dans le traitment de certaines psychoses. :aris, Masson, 1936, 248 pp .
[2] Freeman and Watts, J. W.: Psychosurgery in the Treatment of Mental Disorders and Intractable Pain. Springfield, Illinois, Thomas, 1950, 598 pp.
[3] Knight, G. C.: Bi-Frontal Tracrotomy; An Atraumatic Operation of Value in the Treatment of Intractable Psychoneurosis. Brit. J. Psychiat., 115:257-266, 1969.
[4] Ransohoff, J.: Current Status of Psychosurgery; Psychosurgery Panel, Diseases of the Nervous System. 30: Supplement, 1969.
[5] Grantham, E. G.: Prefrontal Lobotomy for the Relief of Pain, with a Report of a new Operative Technique, J. Neurosurgery. 8:405-410, 1951.

Management of premalignant cervical disease*

William T. Creasman, MD, Durham, North Carolina

The author reviews the net effect of the Pap smear and offers some real help in practical management of premalignant lesions of the cervix.

IDENTIFICATION AND MANAGEMENT of premalignant lesions in the lower genital tract is becoming an increasingly important part of care of the female patient. Rubin[1] 60 years ago described a microscopic picture of what today is known as carcinoma in situ of the cervix. However, it was not until in the early 40's Papanicolaou[2] published his monologue on cervical cytology and added a new and important diagnostic tool to our armamentarium. Still it has only been within the last decade or so that this procedure has been utilized by the majority of physicians, and even today there are still some skeptics among us. In New York City, death rate from carcinoma of the cervix has dropped 64 per cent among non-whites and 43 per cent among white in the last 20 years.[3] During the last 10 years over 700,000 Papanicolaou smears were examined in the Health Department facilities alone. The downward trend of cervical cancer death rate in New York City especially among the medical indigent points to the effectiveness of the Papanicolaou test. At Kings County Hospital in Brooklyn, cervical cytological screening was extended in an attempt to include all women admitted to that hospital.[4] In the first year the number of carcinoma in situ detected increased two and a half times and the cases of stage I disease increased by 50 per cent. It was felt that these changes resulted directly from an increase in the screening. Therefore, today's physician must be aware not only of the importance of cytologic screening but the proper methods of how to carry it out. He must know the meanings of the cytologic reports so that the proper investigation can be carried out. Finally he must be prepared to carry out the investigative procedures or see that they are done by someone trained in the field.

Detection

Many patients with premalignant disease of the cervix are asymptomatic. Since this entity represents a spectrum of abnormality that can eventually lead to malignancy these lesions must be identified early so that these women can receive appropriate care. At the M. D. Anderson Hospital and Tumor Institute, Houston, Texas we recently reviewed 861 patients with a diagnosis of carcinoma in situ (CIS) (Table I).[5] About 50 per cent of the lesions were found because these women presented themselves to the physician for a gynecological complaint. Almost one-fourth of our study had the diagnosis established because Papanicolaou smear and pelvic examination were accomplished on patients who sought medical advice for a non-gynecological complaint. About one-fourth had the diagnosis established on a "routine" pelvic examination and Papanicolaou smear. Carcinoma in situ was found in 8.6 per cent after being referred to this institution because of

*Presented at the 67th annual Wyoming Medical Society Meeting, Jackson Hole, Wyoming, September, 1970. Dr. Creasman is presently from the Department of Obstetrics and Gynecology, Duke University Medical Center, Durham, North Carolina.

TABLE 1

PRESENTING SYMPTOM IN PATIENTS WITH CIS

Gynecological Complaint	457/861	53 %
Non Gynecological Complaint	189/861	22 %
Routine Exam	141/861	16.4%
Referred MDAH for Non-Gyn Malignancy	74/861	8.6%

malignancy elsewhere in the body. Therefore about one-half of our patients had the diagnosis made on an incidental pelvic examination and Papanicolaou smear. The vast majority of these would have been missed if it had not been for the Pap smear.

It is good medical practice that every woman beginning in the late teens should have an annual pelvic examination and Pap smear. Between the fourth and fifth decades this procedure should be increased to every six months. If a patient becomes pregnant before the late teens, a Papanicolaou smear should be accomplished as part of the prenatal care. In fact, all pregnant women should have a Pap smear as part of their initial prenatal examination.

In detecting non-clinical cervical lesions, the best way to take the Papanicolaou smear is with a wooden spatula removing the cells directly from the cervix. A cotton tip applicator which has been slightly moistened with saline can also remove a cytological specimen from the endocervical canal. These two methods are better than using the vaginal pool for the specimen as it is only about 50 per cent accurate in assessing abnormality of the cervix. The specimen is then placed on the surface of a clean glass slide and placed in a solution of alcohol and glacial acetic acid or the solution preferred by your pathologist.

The results of the smears are reported by several methods. Table 2 depicts the older numerical classification along with its description as well as the new reporting methods preferred by many cytologists. If a class III, IV or V Papanicolaou smear (which corresponds to inconclusive or malignant cells) is returned from a cervix without a visible lesion, further diagnostic procedures are indicated. The patient should be recalled immediately to the office and a repeat Papanicolaou smear and a four quadrant cervical biopsy should be obtained in the office. If the cervical biopsy is reported as invasive carcinoma, then no further diagnostic procedure is indicated, and definitive treatment can be planned without waste of the patient's time and expense for conization of the cervix. Approximately 85 per cent of the stage I carcinoma of the cervix at our institution have been diagnosed with a four quadrant cervical biopsy.

When the cervical biopsies are read by the pathologist as being severe dysplasia or carcinoma in situ, then conization of the cervix is indicated. Prior to the conization of the cervix the portio of the cervix and the entire upper vagina should be stained with Lugol solution. Normal tissue will stain a deep mahagony and Lugol solution identifies abnormal epithelium as it will not take up the stain. These nonstaining areas do not necessarily mean premalignant changes as infection or trauma can also cause them. CIS can be multicentric and Lugol's staining will identify these areas. The margins of the cone should be lateral to the nonstaining area of the cervix. The conization should be carried down to the vicinity of the internal os and the specimen removed in toto. A dilatation and curettage should also be done but only after the conization. A D&C should not be a substitute for conization. The conization specimen must then be evaluated completely by the pathologist. This requires many sections

TABLE 2

CLASSIFICATION OF CERVICAL CYTOLOGY

Class	Older Classification	Current Cytologist Preference
I	Normal cells only	
II	Atypical cells probably due to infection or metaplasia	No malignant cells seen
III	Abnormal cells but not obviously malignant	Inconclusive or dysplasia cells
IV	Cells suggesting malignancy	
V	Cells conclusively malignant	Malignant cells present

at frequent intervals through the conization specimen. If facilities are available for use of the cryostat, then the pathological evaluation can be made within thirty minutes and definitive therapy carried out at that time if so indicated.

Treatment

Dysplasia: Increasing evidence indicates that undisturbed dysplasia particularly severe dysplasia can progress into CIS. Stern[6] found that the majority of new cases of cancer originate in women with dysplasia. Electron microscopy can find no differences morphologically between dysplasia and carcinoma in situ. Most patients with dysplasia are young and are desirous of keeping their childbearing ability. Therefore, this lesion can be treated conservatively and conization of the cervix can be not only diagnostic but therapeutic. Routine close follow-up of these patients is necessary. If abnormal cytology again appears, further diagnostic or therapeutic procedures such as a hysterectomy is probably indicated. If a patient has severe dysplasia on conization of the cervix and has passed the childbearing age, hysterectomy as definitive treatment is probably indicated.

Carcinoma in situ: Within recent years several large series on carcinoma in situ,[7,8,9,10] have appeared in the literature; however, there is still no unanimity as to its proper management. The entire spectrum from conization to simple hysterectomy to radical hysterectomy have their proponents. Most of the recent large series which have appeared in the literature have taken the middle ground, and although these authors stress the point that all of these patients are individualized they generally do a simple hysterectomy either vaginally or abdominally if the patient no longer wants children. Since our institution is strictly a referral center and since these patients may travel many hundreds of miles to come to Houston, we have tended to be somewhat more aggressive in treating this lesion than possibly a physician for a similar patient living in a local community (Table 3). There were, however, 73 patients who had no definitive treatment and were followed either with biopsy of the cervix or Papanicolaou smear. Most of these patients were elderly or had other malignancies and their medical condition precluded further therapeutic considerations. An additional 65 patients had conization only and were followed with subsequent Papanicolaou smear. There were 608 patients (70 per cent) who had simple hysterectomies performed either vaginal or abdominal as definitive therapy for their carcinoma in situ. An additional 34 patients were treated by the removal of the cervical stump. Forty-five patients were treated with either local radium application or combination of radium and external irradiation. Thirty-six patients had other modalities or combinations of therapy for carcinoma in situ.

TABLE 3
TREATMENT FOR CIS

Biopsy only—followed with PAP	73
Conization Cervix only	65
Abdominal Hysterectomy	337
Vaginally Hysterectomy	271
Stump Removal	34
XRT* and/or Radium	45
Other	36
TOTAL	861

*XRT—External irradiation

At our institution if a woman is found to have carcinoma in situ of the cervix and is no longer desirous of having further children, we feel that the best treatment is simple hysterectomy. Conization of the cervix only is delegated to those young patients who desire to have further children. Other methods of treatment that we have used were carried out because of medical contraindication to surgery.

Recurrences

In the 861 patients studied 27 recurrences in 25 patients (2.9 per cent) were identified. About one-half of these occurred within 24 months after the primary treatment; however, 20 per cent of the total number had their recurrence five years or more after therapy. The recurrence was carcinoma in situ in 20 of the patients and invasive disease in the other seven patients. All have had subsequent therapy which to date has been successful.

The recurrence rate was not significantly different between the three main modalities of therapy—conization, simple hysterectomy, or irradiation therapy. The patients who were

treated with simple hysterectomy had the lowest recurrence rate and were in the group that had by far the largest number treated by a single treatment method.

The patients who were treated with hysterectomy were evaluated as to recurrence in regard to the amount of vaginal cuff removed. There was no difference in the recurrence rate between patients who had 1 cm. or less of vaginal cuff removed in comparison to those with 1-3 cm. or greater than 3 cm. of vaginal cuff removed.

Discussion

In almost one-third of our patients histological evaluation revealed that carcinoma in situ was present in the endocervical glands. To an individual who is not accustom to microscopically reviewing this lesion frequently an interpretation of invasive carcinoma of the cervix can be entertained. The distinction between carcinoma in situ with endocervical glandular involvement and invasive carcinoma must be made as the patient with the endocervical glandular involvement should be treated as if the patient had only carcinoma in situ limited to the epithelial layer. This has been our policy in treating almost 250 patients, and the follow-up evaluation of these women finds no increased incidence of recurrence, and prognosis is not sufficiently different compared to the patients without glandular involvement.

In the review of our material there is a significant number of patients with carcinoma in situ of the cervix who have another premalignant or malignant lesion elsewhere in the body—18 per cent of all of our patients. One-half of these double malignancies occurred elsewhere within the lower genital tract. This high incidence of a second primary lesion is significant and a search for another lesion should not be omitted.

Summary

Adequate care of the female patient is as follows: All women in the childbearing age should have a pelvic exam and Papanicolaou smear performed routinely once a year. Beginning in the mid-40's this should be increased to every six months. If an abnormal Pap smear is obtained then routine four quadrant cervical biopsies should be performed. If the tissue diagnosis of dysplasia or carcinoma in situ is returned, then conization of the cervix is the next diagnostic procedure. After thorough investigation of the conization specimen, a patient with dysplasia or carcinoma in situ who desires further children may be watched closely with Pap smears or repeated biopsies. Initially the cytology should be obtained at three month intervals and suggestion be made to the patient that her family should be completed in the reasonably near future. If during this time of follow-up abnormal cytological smears are obtained, then further diagnostic work up should be carried out and hysterectomy probably performed. If severe dysplasia or carcinoma in situ is returned on conization specimen and the patient is no longer desirous of having any more children, then a simple abdominal or vaginal hysterectomy should be performed. Definitive surgery does not complete the surveilance in a patient with premalignant disease of the cervix. These patients should be followed at regular intervals with cytology as recurrence can occur several years after definitive therapy.

According to the American Cancer Society the death rate from cancer of the cervix has decreased 47 per cent from 1950-52 to the 1965-67 study periods.[11] This is attributed in large part to frequent routine Papanicolaou smears. Still they estimate that 42,000 women will develop cancer of the uterus and some 13,000 will die from this malignancy in 1970. Much has been accomplished, but there is still much that must be done by increased surveilance and adequate follow-up of the female patient. •

REFERENCES

[1] Rubin, I. C.: Am. J. Obstet. & Gynec., 62:668, 1910.
[2] Papanicolaou, G. N., and Traut, H. E.: Commonwealth Fund, New York 1943.
[3] Oppenheim, A.: As reported in Medical Tribune and Medical News.
[4] Nelson, J. H., and Hall, J. E.: Ca-A Cancer Journal for Clinicians, 20:150, 1970.
[5] Creasman, W. T., and Rutledge, F.: Carcinoma in Situ of the Cervix. In preparation.
[6] Stern, E., and Neely, P. M.: Acta Cytol (Balt.), 7:357, 1963.
[7] Green, G. H.: Inter. J. Gynec. & Obstet., 7:157, 1969.
[8] Devereu, W. P., and Edwards, C. L.: Am. J. Obstet. & Gynec., 98:497, 1967.
[9] Parker, R. T.: Obstet. & Gynec. Survey, 24:684, 1969.
[10] Hall, J. E., Boyce, J. G., and Nelson, J. H.: Obstet. & Gynec., 34:221, 1969.
[11] Ca-A Cancer Journal for Clinicians, 20:11, 1970.

Hypnosis--magic or quackery?

Ira L. Howell, MD, Denver

No PROCEDURE IN medical history has generated controversies or created misunderstandings to compare with that of hypnosis. Exponents have touted it as quick and easy magic; opponents have denounced it as quackery in its worst form; some have even denied its very existence. Those who know it best consider it to be neither magic or quackery, and the truth lies somewhere between the two extremes.

Technics similar to hypnosis have undoubtedly been used since long before history was recorded. References to treatment using suggestion in some form are found in early Egyptian papyri and early Greek writings. But for a description of a process of which there could be no doubt, history had to wait until 1775, when Franz Anton Mesmer (1734-1817) first described his "animal magnetism."[1] Later, his contemporaries "exposed" him as a fake. James Braid (1795-1860), a Manchester surgeon who coined the terms "hypnotism" and "hypnosis" helped establish some respectability for the phenomenon. Yet some of the greatest opposition to hypnosis occurred in England, and the British Medical Society on one occasion condemned it "as clearly a fraud."[2] Hypnosis was used in the treatment of minor psychiatric illnesses, and for anesthesia in minor and major surgery from 1829 on, but with the discovery of the more efficient ethyl ether anesthesia, it fell into disuse. Jean Martin Charcot (1825-1893), Freud's teacher, used hypnosis on neurologic and psychiatric patients with some success. He was convinced there was a mysterious magnetic fluid involved in the phenomenon. There was controversy between him on the one side and A. A. Liebeault (1823-1904) and Hippolyte Bernheim (1837-1919), a Nancy physician, on the other. The two latter insisted that the process owes its value to suggestion alone. Bernheim's dictum "sleep produced by hypnosis could well be described as sleep produced by suggestion"[3] is accepted today. Emil Coue (1857-1926), Bernheim's pupil and known for his "Every day in every way, I am getting better and better," is father of the dictum "there is no suggestion, there is only auto-suggestion."

Hypnotism is defined as the method or practice of inducing hypnosis. The term is sometimes used as a synonym for hypnosis. Hypnosis can well be defined as a state of increased suggestibility, induced by suggestion, in a suggestible person. To fulfill the requirements of this definition these conditions must be met: (1) we must start with a suggestible subject, (2) by proper suggestions an alteration of his consciousness occurs which consists of, (3) a state of increased suggestibility—a state in which he accepts the hypnotist's suggestions less critically than in the normal state.

Why can the experienced operator not hypnotize any and all subjects? There are four conditions or mechanisms which militate against the production of the hypnotic state: (1) fear, (2) anger, (3) preoccupation, and (4) countersuggestions or negativism against the process or operator. The first three of these are adaptive mechanisms, and abnormal amounts of them can be considered to constitute primary symptoms of psychiatric disease. Fear may be experienced in the form of anxiety, worry, or phobias. Anger may be manifested by hostile feelings, aggressive acts, irritations, annoyance, or resentments. Preoccupation in excess may be exhibited, in mild form, by absentmindedness, in severe form by hallucinations and/or delusions. Countersuggestion may be considered to be a form of hostility and therefore could come under the heading of anger.

Much satisfactory group activity depends upon a free flow of suggestions among the different members. We could say that satisfactory interpersonal relationships between

or among a group of two or more persons depends upon a free or satisfactory flow of suggestions. Satisfactory group activity consists of one member's making a suggestion that the others enjoy with him an activity. "It's a nice day," is, in effect, an invitation or sugestion that the others enjoy a discussion of the weather. "Let's have a cup of coffee" or "Let's watch T.V." are suggestions that the group enjoy a mutual activity.

Good interpersonal relationships depend not upon a complete flow or acceptance of suggestions made by a member, but a free flow of offered and accepted suggestions. Negative response to "Let's have a cigarette," need not constitute rejection if accompanied by, "No thanks, I don't smoke," or, "I just had one," etc.

But suppose we note one of our group has offered few or no suggestions. We could think, justifiably, "This person does not want to enjoy mutual activity with us. He does not accept us." Another individual might refuse to accept and act on any of our offered suggestions. We could well interpret his negativism as hostile or rejecting. The third killjoy might offer suggestions to the group but refuse to accept any from others.

Charcot, recognizing the self-hypnosis in hysteria, considered hypnotism to be pathologic in nature. We can now see that his assumption was erroneous. But we must not make the mistake of assuming that the well-adjusted are easier hypnotized than the emotionally ill—hysteriacs are most often easily hypnotizable; schizophrenics and sociopaths are most often refractory.

What takes place when one person makes a suggestion to another? Superficial observation will show us that three things happen: (1) the suggester considers and decides to make the suggestions, (2) he offers the suggestion, verbally or otherwise, and (3) the subject accepts or rejects the suggestion. A more careful analysis makes for better understanding; we may find that by dividing the process into six steps, that there are three steps involved in offering the suggestion and three mirrored steps of identical nature induced in the subject. First, the suggester or operator considers whether or not it is wise for him to make a suggestion. Second, he plans in his own mind to do so. Third, he offers the suggestion verbally or by other means, hopefully understood by the subject. His final act induces a consideration of whether or not to accept by the subject. Next, the subject plans to accept or reject the suggestion and, finally, he acts either positively or negatively. The induced reactions in the subject are necessary for final action. Knowing this, we can see the justification for Coue's dictum and understand that no suggestion is effective until it has been transmuted to an autosuggestion.

From this we can see that what the hypnotist does is not nearly so important as what the hypnotized subject does. The subject has the final say as to whether or not the suggestion will be executed. This should allay the fears of those who think that they might be unduly influenced by suggestion or who worry that subliminal suggestion might be used via television, movies, etc., to influence the viewer adversely.*

Post-hypnotic suggestion is an interesting and important phenomenon, especially in medical hypnosis. This consists of the subject's carrying out a suggestion after the hypnotic trance has been terminated. Once a suggestion has been properly accepted (via autosuggestion in the subject) there is a strong force or urge for the subject to carry it out. If he is prevented from executing the act, considerable anxiety may result. Furthermore, post-hypnotic suggestions have been reported to have been carried out (without re-inforcement) frequently after 1½-2 years, and on occasion after five years.[5]

One might wonder why this force so strong and capable of such long life could not be applied with therapeutic effectiveness. The answer lies in the fact that counter-suggestion can undo what the hypnotist does. Take for example the suggestion to stop smoking. Under hypnosis this suggestion works well—for a time. Typically the subject arouses after a trance with some apparent skepticism. He lights a cigarette and puts it out with disgust. But after a few hours of observing others smoke, he suggests to himself,

*Experimentally suggestions to, "Buy Coca-Cola," "Buy Popcorn," were flashed on a movie screen in between frames of the regular picture in a movie house. These lasted for 1/3000 second and elicited no conscious knowledge of their existence. Substantial increases in the sale of the items were reported.[4]

"That cigarette sure smells good," "I like to smoke," "smoking relaxes me," or some other thought counter to the post-hypnotic suggestion. Eventually the countersuggestion is more potent. The wise hypnotist sets a limit of 24-72 hours on the suggestion, knowing it will not last.

In instances in which post-hypnotic suggestions were carried out after a period of months, the acts consisted of writing letters on a certain date. The opportunity for countersuggestion was not so available.

Realizing that the three steps of autosuggestion, i.e., consider, plan, and execute, must be fulfilled, and that the pitfalls of fear, anger, preoccupation, and countersuggestion must be avoided, we can see that the effectiveness of hypnosis and post-hypnotic suggestion is quite limited. Those persons who could derive the most benefit from hypnosis are the ones in whom we find the greatest amount of fear, anger, preoccupation and countersuggestions, namely the emotionally maladjusted and the chronically ill. The practical use of hypnotism therapeutically is pretty well limited to acute situations or one-time procedures such as for relaxation in childbirth and minor surgery as in dentistry. Treatment by hypnosis of almost all other conditions will be doomed to failure because of one or more of four opposing forces.

It is interesting to note the relationship of suggestion and voluntary behavior. Behavior in the lower animals is totally (or nearly so) dependent upon instinct. Man depends to some extent on instinct, but he has a greater choice and need of self-direction. A voluntary act depends upon a mechanism which is similar to, or identical with, autosuggestion; the act is first considered, next planned, and finally executed. Most acts handled in this manner are carried out seemingly in an automatic manner, i. e., awakening at a predetermined hour without alarm clock, stopping at the service station on the way home from work, etc. The interfering forces are the same as in autosuggestion: fear, anger, preoccupation, and countersuggestion.

If one can accept the postulates that voluntary behavior depends on autosuggestion, that hypnosis is suggestion, and that all suggestion is autosuggestion, several things concerning behavior of the psychologically ill become more easily explained. We can see why the hysteriac acts like a hypnotized subject. We can see why hypnosis is ineffective in the treatment of the emotionally ill and in many of the chronically ill patients. We can even see why most forms of treatment other than suggestion are lacking in effectiveness. •

REFERENCES

[1] Schneck, Jerome M.: Hypnosis in Modern Medicine. Springfield, Charles C. Thomas, 3rd Ed. 1963.
[2] Selwyn-Brown, Arthur: The Physician Throughout the Ages. New York, Capehart-Brown Company, 1928.
[3] Bernheim, Hippolyte: De La Suggestion. Paris, Octave Doin, 1886.
[4] Packard, Vance: The Hidden Persuaders. New York, David McKay Company, Incorporated, 1957.
[5] Weitzenhoffer, Andre M.: Hypnotism, An Objective Study in Suggestibility. New York, John Wiley & Sons, Incorporated, 1953.

ANNOUNCEMENT FROM CIVILIAN HEALTH AND MEDICAL PROGRAM OF THE UNIFORMED SERVICES, DENVER

CHAMPUS beneficiaries requiring treatment for alcoholism, drug addiction, obesity or similar conditions may now receive care in specialized inpatient treatment facilities. Care provided in this type facility will be paid for under the inpatient provisions of the CHAMPUS program. These facilities include alcoholic treatment centers, drug rehabilitation centers, "half-way houses" and similar facilities not generally considered hospitals.

Care in these facilities can be authorized only when the course of treatment is prescribed and supervised by a physician. In addition, the facility providing care must meet whatever licensing or other certification requirements are established for this type of facility by the jurisdiction in which it is located.

SEE THE LATEST DEVELOPMENTS IN

Surgical and Medical Equipment

AT OUR DISPLAY DURING THE ANNUAL SESSION OF THE COLORADO MEDICAL SOCIETY BROADMOOR HOTEL COLORADO SPRINGS, COLORADO SEPTEMBER 22-25—BOOTH 57

"This will be our 59th consecutive display at the Colorado Medical Society Annual Sessions"

Geo. Berbert & Sons, Inc.

1717 Logan Street

Denver, Colorado 80203

Telephone 255-0408

1903 - 1971 — Our 68th Anniversary

The causes of vaginitis are multiple

Trichomonads... monilia... bacteria
You can depend on AVC—comprehensive therapy that combats all three major vaginal pathogens, alone or in combination.

AVC
Cream (aminacrine hydrochlaride 0.2%, sulfanilamide 15.0%, allantoin 2.0%)

Suppositories (aminacrine hydrochlaride 0.014 Gm., sulfanilamide 1.05 Gm., allantain 0.14 Gm.)

Contraindications: Known sensitivity to sulfonomides.
Precautions/Adverse Reactions: The usual precautions for topical and systemic sulfanamides should be observed because of the possibility of absorption. Burning, increased locol discomfort, skin rash, urticaria ar ather manifestatians of sulfanamide taxicity are reosons to discontinue treotment.
Dosage: One applicotorful or one suppository intravaginally once or twice daily.
Supplied: Cream – Four-ounce tube with applicotor. Suppositories – Box of 12 with applicator.

TRADEMARK: AVC AV-104 2/71 Y-149

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC
PHILADELPHIA, PENNSYLVANIA 19144

AVC
The treatment is singular

"Welcome back, Ann"
As adjunctive therapy
DOUBLE STRENGTH
Orenzyme®
Bitabs One tablet q.i.d.
Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units; equivalent in tryptic activity to 40 mg. of N.F. trypsin
Reduces swelling
Hastens healing
Speeds recovery
trauma
A
BUILDING BLOCK
TO RECOVERY
One tablet q.i.d.
Indications: When used as adjunctive therapy for the rapid resolution of inflammation and edema, good results have been obtained in:
□ Accidental Trauma □ Postoperative Tissue Reactions.
Other conventional measures of treatment should be used as indicated. In infection, appropriate anti-infective therapy should be given.
Contraindications: ORENZYME BITABS should not be given to patients with a known sensitivity to trypsin or chymotrypsin.
Precautions: It should be used with caution in patients with abnormality of the blood clotting mechanism such as hemophilia, or with severe hepatic or renal disease. Safe use in pregnancy has not been established.
Adverse Reactions: Adverse reactions with ORENZYME have been reported infrequently. Reports include allergic manifestations (rash, urticaria, itching), gastrointestinal upset and increased speed of dissolution of animal-origin surgical sutures. There have been isolated reports of anaphylactic shock, albuminuria and hematuria. Increased tendency to bleed has also been reported but, in controlled studies, it has been seen with equal incidence in placebo-treated groups. (See Precautions.) It is recommended that if side effects occur medication be discontinued.
Dosage: One tablet q.i.d.
THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144
TRADEMARK: BITABS U.S. PATENT NO 3,004,893 9/70 0-009A 161
Orenzyme® Bitabs
Trypsin: 100,000 N.F. Units, Chymotrypsin: 8,000 N.F. Units; equivalent in tryptic activity to 40 mg. of N.F. trypsin

Cardiovascular manifestation of malignancies*

Alexander Schirger, MD, Rochester, Minnesota

THE CARDIOVASCULAR SYSTEM, through its function of pumping blood and fluids throughout the body, almost assumes ubiquity in the human organism. Thus, a disorder as serious as a malignancy will occasionally affect some part of it. These cardiovascular manifestations of malignancies may be either vascular or cardiac. The vascular manifestations of malignancies are, in decreasing order of frequency, venous, lymphatic, and arterial. Cardiac involvement is less common than vascular.

Venous Manifestations

The venous manifestations of visceral malignancies have been known since Trousseau's[1] original description of "thrombophlebitis migrans" about a century ago. Thrombophlebitis may be superficial and migratory, with relentless involvement of short venous segments in different parts of the body. Solitary or multiple deep venous thromboses may precede or accompany clinical evidence of superficial migratory thrombophlebitis, or involvement of the deep veins in one or multiple parts of the body may be the sole manifestation of malignancy. It is not uncommon, however, for the same patient to have both migratory superficial thrombophlebitis and multiple deep venous thromboses. When the clinical findings are those of phlegmasia cerulea dolens, that is, one or more extremities in which venous stasis and congestion are so severe that capillary stasis, cyanosis, and compromised arterial circulation exist, occult visceral malignancy should be the prime diagnostic consideration. The mechanism of venous thrombosis in malignancy has not been precisely elucidated. In some patients, an alteration of the clotting mechanism is manifested by increased generation of thromboplastin from excessive amounts of antihemophilic globulin (factor VIII).[2] However, other factors have been considered and undoubtedly are involved.

Trousseau's original description concerned the association of phlebitis and carcinoma of the stomach, however, other tumors have been known to be accompanied by venous thrombosis. At the Mayo Clinic, carcinoma of the lung in men[3] and carcinoma of the ovaries or pelvic organs in women are the most frequently associated neoplasms.

The clinical findings of thrombophlebitis in both the deep and superficial veins of patients who have malignancy are similar to those of phlebitis caused by other factors. Three points are worthy of emphasis: (1) phlebitis may develop several months prior to any detectable physical or laboratory evidence of the malignancy, (2) phlebitis may appear resistant to well-controlled coumarin therapy, and (3) intravenous administration of heparin is effective in controlling the phlebitis.

What are the practical implications of phlebitis suspected to be due to an occult malignancy in a given patient, and what is a practical approach to this problem? In a patient who previously has been well, one should embark on a vigorous search for suspected malignancies as soon as the condition of the patient permits. A careful search should be made for nodal metastasis, particularly in the supraclavicular region, for masses in the thyroid, breasts, and abdomen, and for prostatic nodules. In a quiet room, one always should listen over the flanks of the patient for the continuous bruit of an unsuspected hypernephroma.

*The author is a member of the Division of Cardiovascular Diseases and Internal Medicine, Mayo Clinic and Mayo Foundation, Rochester, Minn. This paper was read at the meeting of the Wyoming State Medical Society, Moran, Wyoming, September 1 to 4, 1970.

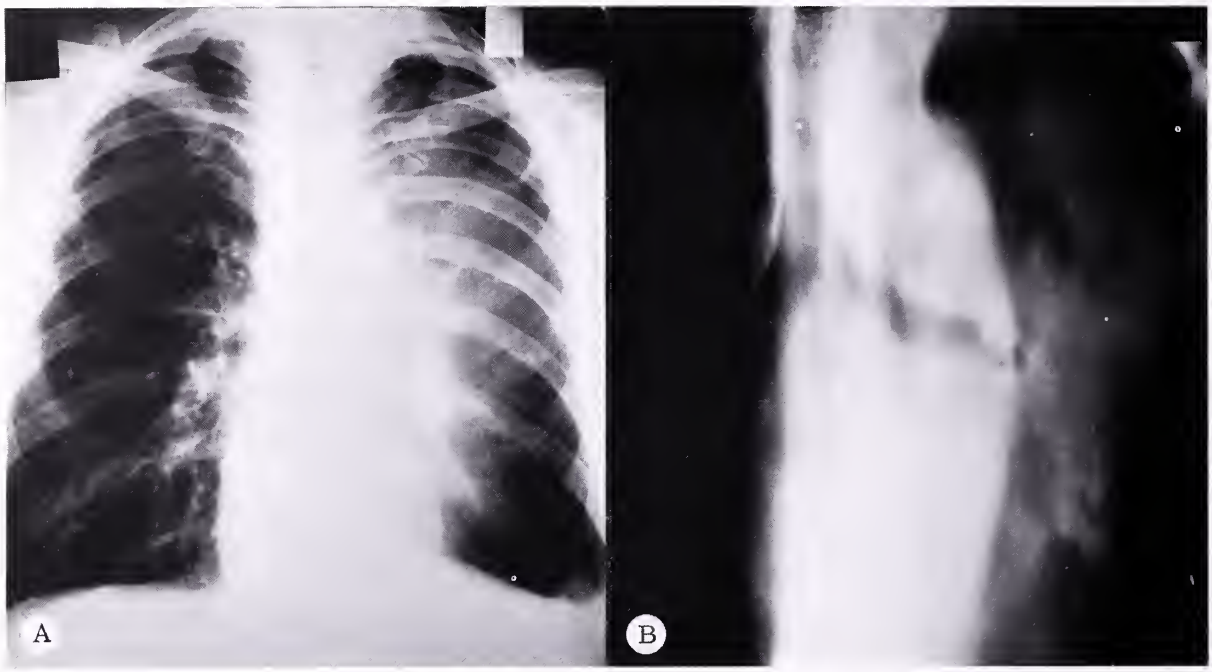


Fig. 1. A, Anteroposterior view of thorax suggestive of left hilar mass. B, Left hilar tomogram showing intrabronchial tumor.

Certain diagnostic procedures are helpful in addition to more standard and nontarget-directed laboratory tests. In men, hilar tomography (Fig. 1) often will reveal a mass that is not apparent on routine posteroanterior roentgenographic views of the chest. The sputa of men and mammograms of women should always be examined for a malignant process. An excretory urogram should be made, and on examination of the prostate, any region that arouses suspicion of abnormality should be biopsied transrectally (Fig. 2). The gastrointestinal tract should be examined even though the effort of detecting early malignancies in this region has been the least rewarding. This search should include not only roentgenographic examination but also proctoscopy and, in selected instances, gastroscopy. Unfortunately, early carcinoma of the pancreas frequently eludes detection by these means, and as experience accumulates, other procedures such as venography of the vena cava and visceral arteriography should be considered. If these are negative, biopsy of a supraclavicular node and exploration of the abdomen should be considered.

We believe that most of these diagnostic procedures can be done without endangering the well-being of the patient and without excessive discomfort to the patient. Furthermore, the early discovery of an occult carcinoma of the thyroid, lung, kidney, ovary, or prostate may increase the chances for cure or may make palliation more lasting and effective. Although the prognosis remains dismal for the patient with thrombophlebitis and occult malignancies of the gastrointestinal tract, particularly of the pancreas, new developments in surgical technics and chemotherapy may offer new hope to these patients.

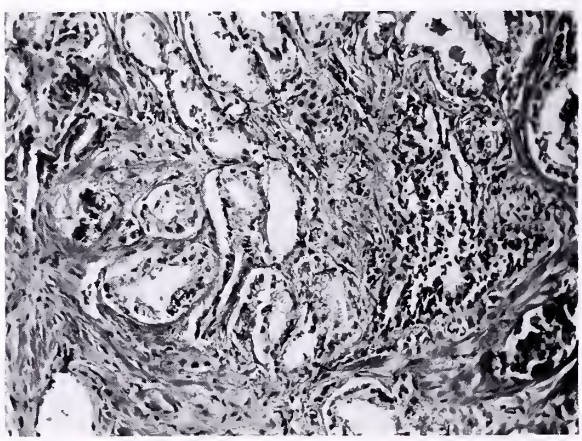


Fig. 2. Transrectal biopsy specimen reveals grade 2 adenocarcinoma of the prostate. (Hematoxylin and eosin; x200.)

Lymphatic Manifestations

Because of the affinity between most malignancies and the lymphatic pathways, involvement of the lymphatic system represents one of the common manifestations. Aside from the tumors caused by visible and palpable nodes, lymphedema is the cardinal lymphatic manifestation of malignancies, both occult and apparent. Lymphedema, that is, swelling of any extremity from lymphatic stasis, may be either idiopathic or secondary. Secondary lymphedema, in turn, may be inflammatory or obstructive. Secondary lymphedema of the obstructive type is frequently due to involvement of the lymphatic pathways by a malignancy. Smith et al.[4] found that the commonest cause of obstructive lymphedema in men is carcinoma of the prostate and in women, lymphoma. Notably, lymphedema may precede other more apparent symptoms and signs of the underlying malignancy.[5] In recent years, lymphangiography has helped in the detection of malignant nodes that cause lymphedema; this is particularly true for the lymphoma group (Fig. 3).

Arterial Manifestations

Arterial manifestations probably are the least common of all cardiovascular manifestations of occult malignancies. Direct invasion of the artery by tumor to cause compression or distal embolization is rare. Occasionally, patients have had carcinoma of the cervix and their femoral vessels have been enmeshed in a pelvic tumor. Also at times patients have had distal emboli in the toes when the tumor has invaded the large intra-abdominal arterial vessels. In addition, by a mechanism probably similar to that of venous thrombosis associated with malignancies, single or multiple arterial occlusions may occur.

Besides these mechanical types of arterial manifestations of malignancies, there are indirect effects that certain tumors have on the arterial tree. Increased arterial systemic resistance with resultant systolic and diastolic hypertension may occur in the patient with malignant pheochromocytoma. The elevation of the blood pressure may be either sustained or paroxysmal, depending on the nature of the discharge of the tumor. Of all

Fig. 3. Lymphangiograms of patient with Hodgkin's disease reveal involvement of para-aortic node.

phoechromocytomas, 10 per cent are malignant and invasive and have distal metastases. Previous removal of a seemingly benign pheochromocytoma does not exclude the possibility of later development of metastasis because the pathologist may not be able to determine from histologic evidence whether the tumor is benign or malignant. Appropriate chemical tests are the most sensitive indicators of pheochromocytoma, for example, the determination of metanephrines in a 24-hour sample of urine or determination of plasma pressor amines. Nephrotomography may visualize the tumor. The cutaneous flush of the malignant carcinoid may give the first vascular clue to the presence of this tumor which commonly originates in the small intestine.

Cardiac Manifestations

The obvious manifestations of cardiac failure, dysrhythmia, and compromised cardiac functions result from direct invasion of a tumor into the epicardium, pericardium, myocardium, or endocardium. There are three cardiac manifestations of malignant tumors that may help the clinician in detecting a tumor and may result in early recognition and perhaps an improved chance for cure or more satisfactory treatment. First, congestive heart failure and unexplained cardiomegaly may be present from multiple arteriovenous fistulae associated with hypernephroma. Thus, careful auscultation over the flanks and upper part of the abdomen and consideration of excretory urography are imperative in every patient with cardiomegaly, congestive heart failure, and a so-called high output state of unknown cause. Second, patients with unexplained cardiac failure that affects the right side of the heart may have involvement of the region of the heart by metastatic carcinoid. Third, amyloidosis of the heart must be considered in the differential diagnosis when extensive metastatic malignancy and congestive heart failure are present.

Summary

The cardiovascular system can reflect processes that occur in distant parts of the body. Some venous, lymphatic, arterial, and cardiac symptoms and signs may occur with malignant lesions in different parts of the body. Although these manifestations may sometimes only confirm clinical suspicion in a malignant process and offer no change in the ultimate fatal prognosis of a given patient, at other times detection of these symptoms and signs may be significantly important in the care of the patient. •

REFERENCES

[1] Trousseau, A.: Lectures on Clinical Medicine, Delivered at Hotel-Dieu, Paris. (Translated by J. R. Cormak) Philadelphia, Lindsey and Blakiston Company, 1872, Vol. 5, pp. 281-332.
[2] Amudsen, M. A., Siptell, J. A., Jr., Thompson, J. H., Jr., and Owen, C. A. Jr.: Hypercoagulability Associated With Malignant Disease and With the Postoperative State: Evidence for Elevated Levels of Antihemophilic Globulin. Ann. Intern. Med., 58:608, 1963.
[3] Byrd, R. B., Divertie, M. B., and Spittell, J. A., Jr.: Bronchogenic Carcinoma and Thromboembolic Disease. JAMA, 202:1019, 1967.
[4] Smith, R. D., Spittell, J. A., Jr., and Schirger, A.: Secondary Lymphedema of the Leg: Its Characteristics and Diagnostic Implications. JAMA, 185:80, 1963.
[5] Allen, E. V., Barker, N. W., and Hines, E. A. Jr.: Peripheral Vascular Diseases. Philadelphia, W. B. Saunders Company (in press).

PICKER Medical Products

3890 ELM STREET — TEL. 388-5731 — DENVER, COLORADO 80207

Offices also in:
Colorado Springs, Colorado
2236 Glenwood Circle, 635-8768

Salt Lake City, Utah
21 Kensington Street, 487-7519

Albuquerque, New Mexico
113 Sierra Dr., S.E., 255-1288

Medical X-Ray Equipment
Accessories & Film
Nuclear Equipment

CALORIES / 7 oz. Serving*

Beef Broth	22	Vegetable	68
Consommé	29	Tomato	69
Chicken with Rice	43	Cream of Asparagus	70
Chicken Gumbo	48	Cream of Chicken	76
Chicken Noodle	54	Cream of Mushroom	115
Cream of Potato	58	Green Pea	116
Chicken Vegetable	60	Cream of Shrimp (Frozen)	132
Vegetable Beef	66	Bean with Bacon	133

In planning high or low calorie diets, Campbell's more than 50 different soups offer you a wide choice. And, most of Campbell's Soups contain a wide variety of ingredients that can serve as supplementary sources of many essential nutrients.

* From "Nutritive Composition of Campbell's Products" which gives values of important nutritive constituents of all Campbell's Products. For your copy, write to Campbell Soup Company, Dept.35, Camden, New Jersey 08101.

There's a soup for almost every patient and diet ...for every meal and, it's made by Campbell

gastritis

when G-I symptoms demand a potent synthetic anticholinergic

move up to "the Robinul response"

In treating hypersecretion and hypermotility associated with gastritis are you disappointed in the results you've been getting with some of the synthetics? Then *move up* to a potent anticholinergic—Robinul® Forte (2 mg. glycopyrrolate). It provides prompt, pronounced, prolonged suppression of gastric hypersecretion, making it a highly effective agent in gastritis and other upper G-I conditions associated with hypersecretion and hypermotility. Because Robinul Forte exerts a profound antispasmodic action, it is also useful in the treatment of lower G-I disorders, such as functional bowel distress and spastic and irritable colon. If the patient has a "one tract mind" concerning his condition, you can help control the anxiety and tenseness by prescribing Robinul®-PH Forte (2 mg. glycopyrrolate with 16.2 mg. phenobarbital —warning: may be habit forming).

Robinul® 2 mg. Forte (glycopyrrolate)

■ **INDICATIONS** Robinul Forte (glycopyrrolate, 2 mg.) and Robinul-PH Forte are double-strength dosage forms of glycopyrrolate. They are primarily indicated for patients who are less responsive to anticholinergic therapy and for control of the more prominent symptomatology associated with acute episodes of gastrointestinal disorders. Emphasis should be on total management, with due consideration of the various therapeutic modalities available, including diet, antacids, anticholinergic agents, sedatives, and attention to emotional problems. Accordingly, glycopyrrolate is recommended in the management of gastrointestinal disorders amenable to anticholinergic therapy, such as: (1) duodenal ulcer, duodenitis, pylorospasm; (2) gastric ulcer, gastritis, esophageal hiatal hernia, hyperchlorhydria, pyrosis, aerophagia, gastroenteritis; (3) esophagitis; (4) cholecystitis, chronic pancreatitis; (5) spastic and irritable colon, ulcerative colitis, functional bowel distress, diverticulitis, acute enteritis, diarrhea; and (6) splenic flexure syndrome, neurogenic gastrointestinal disturbances. When these conditions are associated with psychic overlay, the formulation with phenobarbital may be indicated. ■ **CONTRAINDICATIONS** Glaucoma, urinary bladder neck obstruction, pyloric obstruction, stenosis with significant gastric retention, prostatic hypertrophy, duodenal obstruction, cardiospasm (megaesophagus), and achalasia of the esophagus, and in the case of Robinul-PH Forte (glycopyrrolate with phenobarbital), sensitivity to phenobarbital. ■ **PRECAUTIONS** Administer with caution in the presence of incipient glaucoma. ■ **SIDE EFFECTS** The most frequent side effect noted during clinical trials was dry mouth. Thirty-three (3.3%) of 1,009 patients receiving 1 to 32 mg. of glycopyrrolate a day complained of dry mouth of moderate to severe degree, but only 11 discontinued treatment because of this. Blurred vision, constipation, and urinary hesitancy have been reported infrequently. Other side effects associated with the use of anticholinergic drugs include: tachycardia, palpitation, dilatation of the pupil, increased ocular tension, weakness, nausea, vomiting, headache, dizziness, drowsiness, and rash. ■ **DOSAGE** The average and maximum recommended dose of Robinul Forte (glycopyrrolate, 2 mg.) or Robinul-PH Forte is one tablet three times daily (in the morning, early afternoon, and at bedtime). To obtain optimum results, dosage should be adjusted to the individual patient's response. After the more severe symptoms associated with acute conditions have subsided, the dose may be reduced to the minimum required to maintain symptomatic relief. ■ **SUPPLY** Robinul Forte (glycopyrrolate, 2 mg.) is available as scored, compressed pink tablets engraved AHR/2 in bottles of 100 and 500. ■ Robinul-PH Forte (glycopyrrolate, 2 mg., with phenobarbital, 16.2 mg.) is available as scored, compressed blue tablets engraved AHR/2 in bottles of 100 and 500.

A. H. Robins Company, Richmond, Va. A·H·ROBINS

NEW MEXICO

Maternity and Infant Care

Several years ago, 35 percent of all the mothers who delivered their babies at Bernalillo County Medical Center (Albuquerque) had never seen a doctor before the baby was born. Now the New Mexico Maternity and Infant Care project is seeing 1,800 maternity patients and 175 high-risk infants each year. The federally-funded project began first seeing patients in March, 1969, administered by the New Mexico Department of Health, Education and Welfare. Perry A. Henderson, M.D., project director, is an associate professor of obstetrics and gynecology with the University of New Mexico School of Medicine. As of July 1, 1971, the UNM medical school will become the fiscal agent for the project.

The project's theory is to take the pre-natal care to the area where the mothers live. So they hold 32 neighborhood maternity clinics each month in the project area: Bernalillo and Sandoval counties. These include general maternity clinics as well as 12 pre-registration clinics. Good nutrition, family planning if desired, weight-watching and other areas are all part of the clinic program. There are another 20 maternity clinics per month held in the out-patient department of Bernalillo County Medical Center (BCMC). About half of the mothers-to-be receive their pre-natal care in neighborhood clinics.

There are also six neighborhood clinics each month for babies who are having special problems, and four clinics per month at BCMC for these high-risk infants. A neonatologist is available at the hospital, along with modern incubators and specialized equipment. Patients are women who the state or local health agency determines will not receive necessary health care because they are from low income families or for other reasons beyond their control. In addition to the out-patient clinics, the project also is able to assume some of the hospital costs for low-income, high-risk patients where complications are suspected.

"Legislation currently is under consideration in Washington that will extend the M & I projects for another five years," Dr. Henderson said. "If nothing is done, they will end June 30, 1972. We have been offering an expanding service load with a fixed budget, and feel it is important to New Mexicans that we keep expanding."

He said originally the project was to provide service for 600 high-risk patients. Even though the first funds were less than asked for, the project served 1,200 patients. Subsequent grant awards have been for the same or less money, but still the project has grown: 1,833 patients were registered during the past year for pre-natal services alone. The project clinics also serve as important teaching situations for student doctors and nurses—who get a chance to learn firsthand what low income medical care is like, as they help work under supervision at the clinics.

Electroencephalography Technicians

The first four students to complete training as electroencephalography (EEG) technicians at Bernalillo County Medical Center have been graduated, and another class of five students have begun classes.

The new training program is under the direction of Dr. Jim Lewis of the Department of Neurology. It is a one-year course for technicians who administer the EEG tests, which measure electric impulses from the center of the person's nervous system, the brain.

The training includes academic fundamentals as well as instruction on how the hospital functions and how to relate to sick persons. Assisting in the training has been Robert Spears, chief EEG technician at BCMC.

There are less than 10 training schools in the nation for EEG technicians, Dr. Lewis said. The new program was a joint venture between the UNM Convulsive Disorder Unit and BCMC.

COLORADO

State Alcohol and Drug Abuse Council

Governor Love has appointed the following to the newly established State Alcohol and Drug Abuse Advisory Council:

Dr. Robert A. Aldrich, University of Colorado vice president for health affairs; Robert W. Cowan, manager of employee relations, Colorado Interstate Corp., Colorado Springs; Dr. William A. Davis, chief of staff, Grand Junction Veterans Administration Hospital; Dr. Mildred E. Doster, assistant director of medical services, Denver Public Schools; Mrs. John L. J. Hart of Denver, member of the Alcoholism and Drug Dependence Advisory Committee to the Colorado Department of Health; Tony Larson, radio station KOSI, Aurora; Rev. James McMearn, Colorado Springs;

State Sen. Ruth Stockton of Lakewood; and G. Nicholas Pijoan, director of the Governor's Council on Crime Control.

The council was created by legislation adopted at the last session of the State Legislature.

Dr. Aldrich commented:

"It seems to me that the rise of drug use in the young generation is one of the more important new elements in our society which has very long-term ramifications, since these people will grow up and probably carry their point of view through their lives.

"Society has not made up its mind whether either alcoholism or drug use is a sickness or a sin, and most of the time they are treated as if they were sins, for which the obvious treatment is punishment acording to fundamental American principles.

"I think it is highly apropriate to form this council, and I would like to see the University of Colorado Medical Center take a vigorous initiative in helping to form public policy."

WYOMING

CWRMP Advisory Group Officers Elected

Dr. Thomas A. Nicholas, Buffalo, Wyoming physician, and Thomas K. Younge, Grand Junction, Colorado attorney, have been reelected chairman and vice-chairman, respectively, of the Regional Advisory Group of the Colorado-Wyoming Regional Medical Program (CWRMP). The Denver-based CWRMP is a federally funded program striving to improve the quality and delivery of health care in the two states in cooperation with regional health professionals, institutions and consumer groups. Program activities are determined by the 40-member Advisory Group, comprised of health care and lay leaders from throughout the two states.

Dr. Nicholas is a past president of both the Wyoming and Johnson County Medical Societies and has been a member of the CWRMP Advisory Group since 1968. He was first elected chairman in June 1970.

Mr. Younge has been an Advisory Group member since 1968 and was first elected vice-chairman in 1970. He is a member of the Mesa County, Colorado and American Bar Associations, and was president of the Colorado Bar in 1955-56. He also is a member of the American Hospital Association's Society of Hospital Attorneys and the advisory board of St. Mary's Hospital in Grand Junction.

MEDICAL SCHOOL NOTES

University of Colorado Medical Center

The first nine candidates for the new profession of child health associate began their year of internships July 1 in physicians' offices and clinics throughout Colorado and at two Indian reservations in New Mexico. The pioneer class of child health associate students has been studying at the University of Colorado Medical Center in Denver since 1969 in preparation for careers of child care working under the supervision of physicians in private offices, clinics or community health centers.

Upon completion of their internship year next July, the students will be eligible for certification under the new Colorado child health associate law.

There are 14 students in the second class, and another 14 have been accepted for the third class entering July 1.

The child health associate program is one of several efforts under way at the CU Medical Center to ease the shortage of health professionals by intensive training of students to provide many of the services traditionally performed only by physicians. A student can qualify as a child health associate after five years of education following high school, compared with nine years for a family physician and 11 years for a pediatrician.

Students are accepted into the program after two years of liberal arts studies on the Boulder campus of the University or in any other accredited college or university. Required preliminary courses include chemistry, biology or zoology, English literature and psychology. In the course of their studies they earn a B. A. degree from the University.

* * * * *

Newton Optical Company

Catering to Medical Profession Patronage

309 16th Street
Denver 80202

GUILD Rx OPTICIANS

Telephone
534-8714

Dr. Robert A. Aldrich, University vice president for health affairs in charge of the Medical Center, has announced completion of the massive expansion program of the University of Colorado Medical Center, nearly doubling its size.

The last floor tile has been laid to complete the remodeling of the old Colorado General Hospital wings into modern, expanded quarters for the School of Medicine, and the new Colorado General, for the first time since it was opened in 1965, began operation July 1 at its full design capacity of 450 beds. The state of Colorado now has one of the finest university medical centers in the country, with greatly expanded capabilities for discharging its responsibilities in the care of patients, in the education of health professionals so urgently needed, and in contributing new knowledge through biomedical research.

The construction represents the largest single building project undertaken to date by the state of Colorado. It was planned in 1955-58, the first state appropriation was voted in 1959, and ground was broken in 1961. In total the project gives the Medical Center 1,445,428 square feet of floor space today, compared with 754,132 in 1964.

Vice President Aldrich noted that additional growth already is on the drawing-boards in the form of the new School of Dentistry, which was approved by the Legislature in 1967 and for which $2.7 million has been appropriated as the state's share of a $12-million construction budget. Plans are being completed for construction, and schedule calls for the admission of the first class of dental students in the fall of 1972.

University of New Mexico School of Medicine

Dr. Francis N. LeBaron has been named chairman of the Department of Biochemistry at University of New Mexico School of Medicine. He will succeed Dr. Robert B. Loftfield on July 1.

Dr. Loftfield will be on sabbatical leave from UNM for the next year, working with Dr. Henry Harris at the Sir William Dunn School of Pathology at the University of Oxford, England. When he returns to Albuquerque, he will continue teaching as a professor in the Department of Biochemistry. He has been chairman of the department since 1964.

Dr. LeBaron also has been teaching in the department since 1964. His standing in the national scientific community is attested by his being elected first president of the American Society of Neurochemists at its organizational meeting last year. He has served on the editorial board of the Journal of Neurochemistry since 1967.

Dr. LeBaron also is chairman of the UNM Nutrition Planning Committee, which is actively working to investigate causes and working to combat malnutrition in New Mexico. He is an authority on brain and nervous tissue, and has presented papers on these topics at meetings in Strassburg, Germany, and in Prague, Czechoslovakia. He is an author on more than 40 technical papers in his field.

Before joining the UNM faculty, Dr. LeBaron was an associate in biological chemistry at Harvard Medical School. He has been a visiting lecturer in biology at Massachusetts Institute of Technology and was a U.S. Public Health Service Research Fellow at Maudsley Hospital in London.

* * * * *

The Third class of the Medical Technology and Cytotechnology laboratory workers was graduated at the University of New Mexico medical school on June 25, 1971. Laboratory science programs are offered at the medical school by the Department of Pathology, and funded in part by the New Mexico Regional Medical Program.

Students must have at least three years of college study before entering the medical technology course. They receive six months of classroom training at UNM plus six months of supervised training in a hospital laboratory. The course may constitute the fourth year requirement for those colleges and universities which offer a B.S. degree in Medical Technology.

The specialized one year course in Cytotechnology prepares qualified individuals for microscopic examination of cells from various body organs to detect the presence of cancer. Applications are now being taken for the next course in Cytotechnology, which requires at least two years of college study to enter.

A third type of laboratory science offered at the medical school is the Medical Laboratory Assistant course, which is open to high school graduates. The course takes one year: six months at the medical school and six months in an approved hospital laboratory.

Additional information on any of the three types of study is available by contacting the Laboratory Sciences Program at the medical school.

OBITUARIES

Colorado

Earle K. Carmichael, MD, retired Trinidad physician, died July 1 at the age of 84.

Doctor Carmichael was born August 3, 1886 in Pennsylvania, and moved to Trinidad where he lived until his graduation from high school. He attended the University of Colorado and Loyola University in Chicago, and completed his internship at Denver General Hospital. In November, 1911 he was married to Frankie May Caldwell.

He was a member of the Methodist Church, Las Animas Lodge No. 28, AM & AM, Rotary Club, the American Medical Association, Colorado Medical Society, and Las Animas Medical Society.

Survivors include a daughter, Mrs. Lonamae Hill, Trinidad, two grandsons and one great grandson.

Utah

Guy Smith Richards, MD, prominent American Fork physician and surgeon, died June 18, 1971 at the age of 76.

Born February 11, 1885 in Pleasant Grove, Doctor Richards was the son of James and Emeline Smith Richards. He was married to Roxie Adams in November 1917.

Doctor Richards was educated in Pleasant Grove schools, and completed his pre-med studies at the University of Utah. He received his medical degree in 1923 from the Washington University School of Medicine, St. Louis, Missouri and returned to Utah to establish his medical practice in Lehi. In 1927 he moved to American Fork, where he continued to practice until his retirement. He was a member of the Utah County, Utah State, and American Medical Associations, and served on the medical staff of the American Fork Hospital. Doctor Richards was instrumental in establishing the Utah State Training School in American Fork.

An active member of the L.D.S. Church, Doctor Richards was a veteran of World War I.

Survivors include the doctor's widow; one son, Dr. Guy A. Richards, American Fork; and four daughters, Mrs. Robert M. (Mildred) Dyer, Salt Lake City; Mrs. Merrill R. (Lucille) Preston, American Fork; Mrs. Lewis E. (Shirley) Garrett, Anchorage, Alaska; and Mrs. Lou Dell (Donna) Nielsen, Salt Lake City. Also surviving are 19 grandchildren, one great-grandchild, and two brothers.

Wyoming

Kenneth N. Petri, a 70-year-old longtime Laramie physician, died on his birthday December 11, 1970, at Swedish Hospital in Denver. Doctor Petri was a member of the Wyoming State Medical Society for several years.

In addition to his widow, Esther, of Laramie, he is survived by two children—Dr. Kenneth E. Petri of Denver and Mary Ann Scofield of St. Petersburg, Fla.

* * * * *

Emory W. DeKay, a 68-year-old physician who was well known in Wyoming medical circles, died June 11 at the Stanford Medical Center in Palo Alto, Calif. Doctor DeKay and his wife had lived in Pebble Beach, Calif. since 1965 when he retired from a 30-year medical practice in Laramie.

A native of Laramie, Doctor DeKay was a graduate of the University of Wyoming and a cum laude graduate of Harvard Medical School. He began his Laramie medical practice in 1930. In addition to his private practice, he served as team physician for the University of Wyoming football team for many years.

Doctor DeKay served as a captain in the U.S. Army Medical Corps from 1941-45, including hitches in Alaska and the Philippines.

A past president of the Wyoming State Medical Society, Doctor DeKay was active in various other professional and community groups including the Southwestern Surgical Congress, the Wyoming Board of Medical Examiners, Laramie Booster Club and Elks.

A memorial fund has been established for Doctor DeKay at Ivinson Memorial Hospital in Laramie. The fund will be used to purchase new equipment for the new hospital building.

In addition to his widow, Frances, Doctor DeKay is survived by two daughters, three grandsons, one brother and an uncle.

Graduate Medical Assistants

Available for placement now. seven-month intensive preparation, including one month internship in a doctor's office.

We welcome your inquiries!

Contact Director of Placements at (303) 222-1526

Colorado College
of Medical and Dental Assistants
655 Broadway, Denver, Colorado

93rd ANNUAL MEETING
MONTANA MEDICAL ASSOCIATION

September 16-18, 1971

Great Falls, Montana

The 93rd Annual Meeting of the Montana Medical Association will be held on Thursday, Friday, and Saturday, September 16, 17, and 18, in Great Falls, Montana. All physicians are cordially invited and are most welcome to attend this annual meeting. There will be no registration fee.

All of the scientific and business sessions of the 93rd Annual Meeting of the Association will convene in the Rainbow Hotel, which is located in the heart of the business district of Great Falls.

The first session of the House of Delegates of the Montana Medical Association will convene at 11 o'clock on Thursday morning, September 16. During this session, all committee reports, resolutions, and other business of the Association will be introduced and referred to the appropriate reference committee for study. The House will reconvene for its second session and the election of officers at 2:00 o'clock on Thursday afternoon, September 16. Immediately following this session, the reference committees of the House are scheduled to meet to receive the testimony and opinions of members of this Association upon the many items of business. The third and final session of the House of Delegates will convene at 8:30 o'clock on Saturday morning, September 18. During this session, the report of each reference committee will be presented and its recommendations upon reports and resolutions officially acted upon.

The scientific sessions of the 93rd Annual Meeting will convene on Friday, September 17. At these sessions a number of prominent guest clinicians and educators will discuss surgical emergencies, broncho-pulmonary emergencies, acute emergencies of the central nervous system, management of psychiatric disorders in the emergency room, cardiac and metabolic emergencies, etc. These subjects and others of interest to physicians engaged in the general practice of medicine and to those engaged in the practice of a medical specialty will be discussed by the following:

John A. Murray, M.D., Assistant Professor of Medicine, Section on Cardiology, University of Washington School of Medicine, Seattle, Washington

Phiroze B. Sabawala, M.D., Assistant Professor, Department of Anesthesiology, Baylor University College of Medicine, Houston, Texas

Neal E. Ely, M.D., Department of Psychiatry, University of Washington School of Medicine, Seattle, Washington

John F. Perry, Jr., M.D., Chief of Surgery, St. Paul-Ramsey Hospital, St. Paul, Minnesota

John G. Wiegenstein, M.D., President, American College of Emergency Room Physicians, Lansing, Michigan

Alexander C. Johnson, M.D., Neurosurgeon, Great Falls, Montana

On Thursday evening, September 16, the Montana Medical Political Action Committee will sponsor its annual dinner meeting at the Rainbow Hotel. The Honorable Richard G. Shoup, Congressman from the First District of Montana, will be the guest speaker on this occasion.

The annual reception and banquet of the Montana Medical Association will be held on Friday evening, September 17, at the Meadow Lark Country Club. Wesley W. Hall, M.D., President of the American Medical Association, will address members and guests present at the annual banquet. His address will be of special interest to all physicians and their ladies.

Again, the officers and members of the Montana Medical Association extend a very cordial invitation to all physicians in the Rocky Mountain area to attend the 93rd Annual Meeting in Great Falls. You may be assured of a most cordial welcome.

Richard L. Peterson, M.D., President
Robert P. Yost, M.D., Secretary-Treasurer

68th Annual Meeting

WYOMING STATE MEDICAL SOCIETY

Jackson Lake Lodge

Grand Teton National Park

August 31-September 3, 1971

Tuesday, August 31

10:00 A.M. **Registration**—Transportation Desk, Front Lobby

10:00 A.M. **Orientation..Program**

1:00 P.M. **Council Meeting**

2:00 P.M. Credentials Committee Meeting

2:30 P.M. Time and Place Committee Meeting

3:00 P.M. **House of Delegates, Opening Session**

5:30 P.M. Cocktails

6:00 P.M. Exhibitor's Buffet
Speaker: W. Ballentine Henley, Ph.D.
United Church of Religious Science

8:00 P.M. Theatre Party—Pink Garter Theatre, Jackson

8:00 P.M. Stag Night

Wednesday, September 1

8:00 A.M. Registration

8:30 A.M. - 12 noon Scientific Sessions

12:15 P.M. **WYOPAC Luncheon**
Speaker: U.S. Sen. Clifford P. Hansen

2:00 P.M. Nominating Committee Meeting

2:30 P.M. Reference Committees Meet
Medical Services Committee
Research, Organization & Scientific Program Committee
Executive, Governmental Affairs & Economics Committee

6:00 P.M. Cocktails and Hawaiian Luau

8:00 P.M. Dancing to Marvin Fritz and his Dance Band

Thursday, September 2

8:30 A.M. - 12 noon Scientific Sessions

12:15 P.M. Luncheon
Professional Corporations
John N. Yates, C.L.U.
Richard W. Duff, C.L.U.

1:30 P.M. Annual Golf Tournament

6:30 P.M. Cocktails

7:30 P.M. **Annual Banquet**
Speaker: Wesley W. Hall, M.D.
AMA President
Presentation of A. H. Robins "Community Service Award"
Presentation of Golf Trophies

Friday, September 3

8:30 A.M. - 12 noon Scientific Sessions

12:15 P.M. Luncheon
Annual Report of Wyoming Health Services, Inc.

2:00 P.M. **House of Delegates, Closing Session**

4:30 P.M. Council Meeting

GUEST SPEAKERS

Wesley W. Hall, M.D.
AMA President

Clifford P. Hansen
U. S. Senate—Wyoming

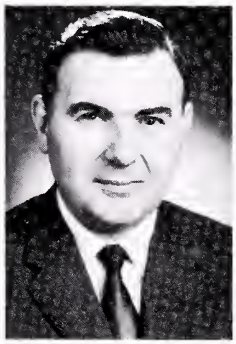
W. Ballentine Henley, Ph.D.
President
United Church of Religious Science
Los Angeles

SCIENTIFIC SPEAKERS

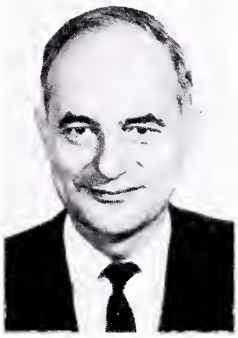
Edgar G. Harrison, M.D.
Mayo Clinic

Clark H. Millikan, M.D.
Mayo Clinic

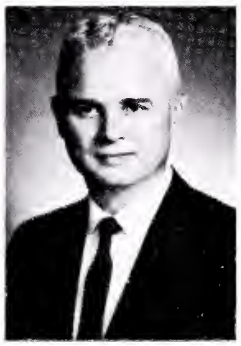
Sheldon G. Sheps, M.D.
Mayo Clinic



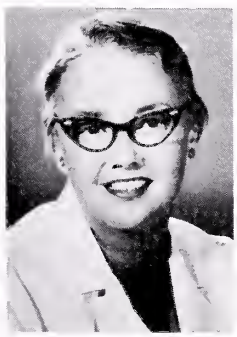
Alexander Schirger, M.D.
Mayo Clinic



Philip P. Ellis, M.D.
Denver



Joseph L. Kovarik, M.D.
Denver



Matilda S. McIntire, M.D.
Omaha, Nebr.

Herman A. Freckman, M.D.
Cincinnati, Ohio

Richard L. Keenan, M.D.
New York City

101st ANNUAL SESSION
COLORADO MEDICAL SOCIETY

September 22-25, 1971

Broadmoor Hotel, Colorado Springs

WEDNESDAY, SEPTEMBER 22

First Meeting, House of Delegates

Reference Committee Meetings

THURSDAY, SEPTEMBER 23

Can Institutions and Young People Get Their Thing Together?
HENRY W. MALCOLM, D.D.

PANEL—Campus Sex in the 70's

Participants:

RICHARD J. HARDY, Ed.D.
Associate Professor of Health Education,
University of Northern Colorado

JOHN LAMPE, M.D.
Director of Health Service, Denver Public Schools

JAMES E. MARQUARDT, M.D.
Medical Director, Wardenburg Health Center,
University of Colorado

HENRY W. MALCOLM, D.D.

Scientific Papers
Presented by Members of the
Colorado Medical Society

Cocktail Party and Centennial Banquet

FRIDAY, SEPTEMBER 24

My Teenager Is Pregnant
ROBERT A. SACK, M.D.

PANEL—The Family in Ferment

Participants:

SIDNEY WERKMAN, M.D.
Associate Professor of Psychiatry
University of Colorado Medical Center

EDITH SHERMAN, Ph.D.
Associate Professor of Sociology,
University of Denver

CARL LARSON, Ph.D.
Associate Professor of Speech Communication,
University of Denver

CAROLINE T. FOX, M.S.W.
Child Study Center, University of Denver

Second Meeting, House of Delegates

Centennial Western Jamboree

SATURDAY, SEPTEMBER 25

Third Meeting, House of Delegates
Election and Installation of Officers
Cancer Surgery, Chemotherapy and Immunity
GEORGE E. MOORE, M.D.

Robert A. Sack, M.D.
Private Practice of Ob-Gyn
Whittier, California

Speakers:

George E. Moore, M.D.
Director of Public Health Research
State of New York Department of Health
and Clinical Professor of Surgery
State University of New York at Buffalo

Henry W. Malcolm, D.D.
Free Lance Lecturer and
Consultant on Behavioral Changes

RECREATIONAL ACTIVITIES

Tennis Tournament:

WEDNESDAY—Women's

THURSDAY—Men's

FRIDAY—Husband and Wife mixed doubles

Golf Tournament:

WEDNESDAY—Practice or qualifying round

THURSDAY
and
FRIDAY—Tournament Play

76th Annual Scientific Sessions

Utah State Medical Association

Salt Palace Convention Center, Salt Lake City

September 15, 16, and 17, 1971

Wednesday, September 15

12:15 P.M.—Luncheon Buffet

"LESSONS FROM THE SEA FOR MEDICINE"
Stewart Wolf, M.D.

Afternoon

WELCOMING REMARKS
Russell M. Nelson, M.D., President
Utah State Medical Association

"ENVIRONMENT—MYTH AND REALITY"
Mr. Roland C. Clement

"THE U.S. SPACE PROGRAM IN THE DECADE OF THE 70'S"
James C. Fletcher, Ph.D.

"NUTRIENT POLLUTION OF UTAH LAKE AND ITS BIOLOGICAL CONSEQUENCES"
Jerald S. Bradshaw, Ph.D.
David A. White, Ph.D.
Brigham Young University
Provo, Utah

Thursday, September 16

"THE DIAGNOSTIC USEFULNESS OF SMALL BOWEL BIOPSY"
S. Keith Petersen, M.D.
Salt Lake City

"CENTRAL VENOUS CATHETER MONITORING: USES, MISUSES, AND PITFALLS"
Walter D. Gaisford, M.D.
Salt Lake City

"SURGICAL EMERGENCIES IN THE NEWBORN"
Dale G. Johnson, M.D.
Salt Lake City

"EXTRACRANIAL CEREBRAL VASCULAR SURGERY"
Richard K. Hughes, M.D.
University of Utah College of Medicine

"THE ROLE OF RADIOTHERAPY IN THE MANAGEMENT OF CERVICAL LYMPH NODE METASTASES FROM PRIMARY NEOPLASMS OF THE HEAD AND NECK"
Charles Votava, Jr., M.D.
Salt Lake City

"ORGANIZED MEDICINE'S CONCERNS WITH ENVIRONMENTAL POLLUTION"
Richard S. Wilbur, M.D.
Assistant Executive Vice President, AMA

"CURRENT THINKING ON AMERICAN HEALTH CARE SYSTEMS"
The Honorable Wallace F. Bennett
U.S. Senator from Utah

"CANCER OF THE CERVIX—CHANGING ATTITUDES IN PREVENTION AND THERAPY"
William E. Crisp, M.D.

"CONTROVERSIES IN SNAKE BITE TREATMENT"
Clifford C. Snyder, M.D.
University of Utah College of Medicine

"PROSPECTS FOR CHANGE IN THE DELIVERY OF HEALTH SERVICES"
Paul M. Ellwood, Jr., M.D.

REVIEW AND CRITIQUE PANEL
Dr. Alan R. Nelson, Dr. Paul M. Ellwood, Jr.
Mr. Kenneth E. Knapp, Mr. Joseph Rosenblatt,
Mr. Maxwell V. Burggraaf

Friday, September 17

"COLORADO TICK FEVER: A REVIEW OF 115 LABORATORY CONFIRMED CASES IN UTAH"
S. L. Spruance, M.D.
University of Utah College of Medicine
Althea Bailey, M.S.
Utah State Division of Health Laboratory

"HEMOLYTIC UREMIA SYNDROME"
C. Clark Welling, M.D.
Salt Lake City

"AIR POLLUTION IN THE LUNGS OF CHILDREN"
William W. Waring, M.D.

"RADIOIMMUNE ASSAY: A NEW LABORATORY TOOL FOR STEROID DETERMINATIONS"
Crichton McNeil, M.D.
Salt Lake City

"RESULTS OF MITRAL RECONSTRUCTION IN OLDER PATIENTS"
William Ray Rumel, M.D.
Salt Lake City

"HOMOGRAFT REPLACEMENT OF THE MITRAL VALVE, CLINICAL AND HEMODYNAMIC FOLLOW-UP STUDIES"
Donald C. Harrison, M.D.

"THE CHALLENGE OF MEDICAL EDUCATION FOR THE FUTURE"
John L. Parks, M.D.

"OFFICE TREATMENT OF THE PREMALIGNANT CERVIX"
William E. Crisp, M.D.

"THE YIELD FROM PELVIC ENDOSCOPY"
John W. Harris, M.D.
Salt Lake City

"THE CLINICAL USE OF PLASMA TESTOSTERONE LEVELS"
Don H. Nelson, M.D., and
LaVell R. Johnson, Ph.D.
Salt Lake City

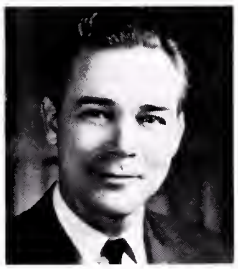
"CURRENT TRENDS IN HIP SURGERY"
Wallace E. Hess, M.D.
Salt Lake City

"MULTI-SYSTEM TRAUMA: RECOGNITION, EMERGENCY TREATMENT AND PROGNOSIS"
Robert J. Beveridge, M.D.
Salt Lake City

"OFFICE MANAGEMENT OF HYPERLIPIDEMIA"
C. Basil Williams, M.D.
Ogden

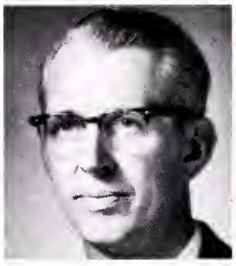
"THE ACTION OF ANTI-ARRHYTHMIC DRUGS"
Donald C. Harrison, M.D.

Guest Speakers:



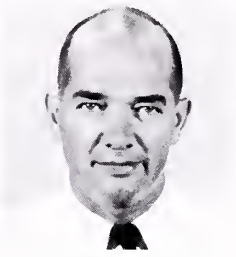
STEWART WOLF, M.D.
Director, The Marine Biomedical Institute
Galveston, Texas

ROLAND C. CLEMENT
Vice President
National Audubon Society
New York, New York



JAMES C. FLETCHER, Ph.D.
Administrator
National Aeronautics & Space Administration
Washington, D.C.

The Honorable
WALLACE F. BENNETT
U.S. Senator
Washington, D.C.



WILLIAM E. CRISP, M.D.
Associated Gynecologists, Inc.
Phoenix, Ariz.

PAUL M. ELLWOOD, JR., M.D.
Executive Director
American Rehabilitation Foundation
Minneapolis, Minnesota

WILLIAM W. WARING, M.D.
Chief, Section of Pulmonary Diseases
Department of Pediatrics
Tulane University School of Medicine
New Orleans, Louisiana

DONALD C. HARRISON, M.D.
Chief, Cardiology Division
Stanford University School of Medicine
Stanford, California

JOHN L. PARKS, M.D.
Dean
George Washington University School of Medicine
Washington, D.C.

16th Biennial
Rocky Mountain Medical Conference
and 68th Annual Meeting
of the
Nevada State Medical Association

October 21-24, 1971

Sands Hotel

Las Vegas, Nevada

Scientific Sessions — Social Functions — Entertainment

The Nevada State Medical Association, Host to the Rocky Mountain Medical Conference for 1971, is proud to announce that the Honorable Winston S. Churchill, M.P., will be guest speaker at the Association's annual banquet Saturday evening, October 23, at the Sands Hotel at Las Vegas. Topic of his presentation will be "The Soviet Threat and the Middle East Crisis."

Young Churchill is now serving Parliament, as did his father, Randolph, his grandfather, the former Prime Minister, Sir Winston, and his great-grandfather, Lord Randolph. He was elected to his first term in the General Elections in 1970 winning the Stratford seat at the age of 28.

Churchill, a writer, journalist and BBC interviewer, has traveled extensively throughout the Middle East, Vietnam and Africa. His advantage over most journalists is that all doors are open to him. He writes and talks with shrewdness, a command of aphorism and a power of description that makes his observations memorable.

Winston Churchill has inherited the former Prime Minister's passion for writing, travel and flying. He attended Eton and graduated from Christ Church College, Oxford University, and skied for the University in the Austrian Alps.

Complete program of the Rocky Mountain Medical Conference will be printed in the September issue of the *Rocky Mountain Medical Journal*. For additional information on the Conference contact: Mr. Nelson Neff, Executive Secretary, Nevada State Medical Association, 3660 Baker Lane, Reno, Nevada 89502.

MEETINGS

Children's Hospital—Denver
Continuing Education Department

AMERICAN ACADEMY OF PEDIATRICS POSTGRADUATE COURSE

Vail, Colorado

September 13-15, 1971

WORKSHOP ON ANTIBIOTICS

October 8, 1971

CENTER FOR DISEASE CONTROL SYMPOSIUM ON NUTRITION

October 22, 1971

No fee. Registration limited.

BRISTOL SEMINAR ON PEDIATRICS INFECTION

December 10, 1971

University of Miami School of Medicine
Department of Otolaryngology

OTOLARYNGOLOGY FOR THE FAMILY PHYSICIAN

Sheraton Four Ambassadors Hotel, Miami, Florida

October 8-9, 1971

AAFP credit—9 hours

For further information concerning this course, contact: F. W. Pullen, II, M.D., Neuro-Otologic Laboratory, University of Miami School of Medicine, P.O. Box 875, Biscayne Annex, Miami, Florida 33152.

University of Colorado School of Medicine
Postgraduate Medical Education

HOSPITAL MEDICAL STAFF CONFERENCE

Estes Park, Colorado

September 27-October 1, 1971

This eighth annual postgraduate conference is presented specifically for the benefit of physicians who are or will be in leadership roles in community hospitals. The mission of the Conference is to provide these key persons with background knowledge and practical methods to improve and enhance their function as staff leaders.

The tuition fee for the five days is $120.00.

The Conference is approved for 34 prescribed hours by the American Academy of General Practice.

HIGH RISK INFANT CARE (Limited)

October 4-8, 1971

OBSTETRICS AND GYNECOLOGY

October 11-13, 1971

ORAL CANCER SEMINAR

October 27, 1971

The above dates are subject to change. Detailed programs will be available six to eight weeks before course date. Information will be mailed to all inquiries prior to the general program distribution. For further information and detailed programs, write to: The Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado.

EDUCATIONAL OPPORTUNITIES FOR LABORATORY PERSONNEL

A developmental source guide for clinical and public health laboratory workshops is now being expanded by the Center for Disease Control. This directory will be made available to individuals and agencies interested in continuing education for medical laboratory personnel. In addition to workshops, the directory will include listings of organizations which make available training aids (e.g., audio-visual materials), manuals, and scientific articles on request.

Individuals, companies, professional associations, and schools who desire to provide information about organizations offering laboratory training workshops, training aids, or libraries of pertinent articles for inclusion in this revised edition should contact:

Center for Disease Control
Attention: E. L. Cavenaugh, Dr. P.H.
Chief, Laboratory Training Section
Laboratory Division
Atlanta, Georgia 30333

No information will be included in the directory without final clearance from the organization or individual offering the training.

Rocky Mountain Radiological Society

33RD MIDSUMMER RADIOLOGICAL CONFERENCE

Brown Palace Hotel, Denver, Colorado

August 19-21, 1971

Non-Member Registration Fee—$20.00.

(No fee for speakers on program, physicians in training, members of Armed Services, and scientific and technical exhibitors. No fee for non-radiologists who are guests of a member.)

University of Colorado School of Nursing, Continuing Education Services

INDUSTRIAL HEARING CONSERVATION

University of Colorado School of Nursing,

Denver, Colorado

October 15-17, 1971

The regulations of the Occupational and Safety Health Act of 1970 are requiring industries to be concerned with hearing conservation and noise control in their work environment. The medical and safety teams of industries must not only understand these federal and state requirements, but must also be able to implement them competently.

Tuition $40.00. Administrative fee $5.00.

For further information, contact Continuing Education Services, University of Colorado School of Nursing, 4200 East Ninth Avenue, Container 2418, Denver, Colorado 80220.

American College of Surgeons

57TH ANNUAL CLINICAL CONGRESS

Atlantic City, New Jersey

October 18-22, 1971

National Association of Underwater Instructors

SECOND DIVING MEDICINE COURSE

San Diego, California

August 21-28, 1971

For information, write NAUI Headquarters: 22809 Barton Road; Colton, Calfornia 92324, or call (714) 783-1862.

Bryan Days

SELECTED ENDOCRINE AND METABOLIC PROBLEMS

Bryan Memorial Hospital, Lincoln, Nebraska

October 15-16, 1971

For further information concerning this program, contact George E. Larson, M.D., Bryan Memorial Hospital, 4848 Summer St., Lincoln, Nebraska 68506.

American Academy of Pediatrics

40TH ANNUAL MEETING

Palmer House Hotel, Chicago, Illinois

October 16-21, 1971

This meeting will feature a versatile program of scientific presentations, seminars, round tables and symposiums.

PHONOCARDIOGRAPHY PULSE TRACINGS-VECTORCARDIOGRAPHY A WORKSHOP

September 27-30, 1971

This is an intensive four-day program covering in detail the field of phonocardiography and pulse tracings and vectorcardiography. Emphasis will be placed on the values and limitations of these techniques and related areas as applies to the patient's diagnostic problems. Two days will be dedicated to phonocardiography and pulse tracings and two days for vectorcardiography. The morning sessions will be devoted exclusively to individual analysis of tracings by the participants under the orientation of the local and guest faculties. This program is intended for those who wish a close and detailed exposure to the values and the limitations of these techniques.

PRESENTED BY:
The American College of Cardiology
and
Institute for Cardiovascular Diseases, Good Samaritan Hospital, Phoenix, Arizona

AT:
Mountain Shadows Resort Hotel, Scottsdale, Arizona

PROGRAM DIRECTOR:
Alberto Benchimol, M.D., Director, Institute for Cardiovascular Diseases, Good Samaritan Hospital

GUEST SPEAKER:
Bernard L. Segal, M.D., Associate Professor of Medicine, Hahnemann Medical College and Hospital, Philadelphia, Pennsylvania

FOR INFORMATION CONCERNING THE PROGRAM, WRITE:

Mr. William Nelligan
Executive Director
American College of Cardiology
9650 Rockville Pike
Bethesda, Maryland 20014

SOCIETY OFFICERS

Colorado Medical Society

OFFICERS—1970-71—Terms of Officers and Committeemen expire at the Annual Session of the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: Marvin E. Johnson, Denver.

President-elect: Kenneth A. Platt, Westminster.

Vice President: William Y. Takahashi, Boulder.

Treasurer: Dwight C. Dawson, Colorado Springs.

Constitutional Secretary: James A. Henderson, Denver.

Delegates to the American Medical Association: Ray G. Witham, Craig, Dec. 31, 1972; Gatewood Milligan, Englewood, Dec. 31, 1971; Robert E. McCurdy, Denver, Dec. 31, 1971.

Alternate Delegates to the American Medical Association: Marcia Curry, Denver; R. Neil Chisholm, Denver; John M. Wood, Englewood.

Speaker, House of Delegates: Kenneth A. Kahn, Boulder.

Vice Speaker, House of Delegates: James A. Philpott, Denver,

Foundation Advocate: Charles B. Kingry, Denver.

Historian: Richard W. Whitehead, Denver.

Historian Emeritus: Bradford Murphey, Denver.

Scientific Editor for Colorado and Chairman of the Editorial Board, Rocky Mountain Medical Journal: Douglas W. Macomber, Denver.

Assistant Scientific Editor for Colorado, Rocky Mountain Medical Journal: Carl H. McLauthlin, Denver.

Executive Secretary: Mr. Donald G. Derry, 1809 E. 18th Avenue, Denver, Office Telephone (303) 399-1222.

Montana Medical Association

OFFICERS—1970-71—Terms of officers and committeemen expire at the annual meeting in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Meeting.

President: Richard L. Peterson, Hamilton.

President-elect: John Pfaff, Jr., Great Falls.

Vice President: Hollis K. Lefever, Lewistown.

Secretary-Treasurer: Robert P. Yost, Missoula.

Assistant Secretary-Treasurer: Wilfred S. Miller, Whitefish.

Delegate to the A.M.A.: Herbert T. Caraway, Billings.

Alternate Delegate to the A.M.A.: Mark B. Listerud, Wolf Point.

Executive Committee: Richard L. Peterson, Hamilton; John Pfaff, Jr., Great Falls; Hollis K. Lefever, Lewistown; Robert P. Yost, Missoula; Wilfred S. Miller, Whitefish; Herbert T. Caraway, Billings; Mark B. Listerud, Wolf Point; Oscar A. Swenson, Kalispell.

Scientific Editor, Rocky Mountain Medical Journal: Gerald A. Diettert, Missoula.

Associate Editor, Rocky Mountain Medical Journal: Mr. L. Russell Hegland, Billings.

Executive Secretary: Mr. L. Russell Hegland, 1236 North 28th St. (P.O. Box 1692), Billings 59103. Telephone, (406) 252-6673.

Nevada State Medical Association

OFFICERS—1970-71—Terms of officers and committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: V. E. Elliott, Fallon.

President-elect: William D. O'Gorman.

Secretary-Treasurer: John P. Sandle, Reno.

Delegate to A.M.A.: Leslie A. Moren, Elko.

Alternate Delegate to A.M.A.: Kenneth E. Turner, Las Vegas.

Immediate Past President: V. A. Salvadorini, Reno.

Scientific Editor for Nevada Rocky Mountain Medical Journal: Harry J. McKinnon, Las Vegas.

Assistant Scientific Editor for Nevada, Rocky Mountain Medical Journal: Wesley W. Hall, Reno.

Associate Editor, Rocky Mountain Medical Journal: Mr. Nelson B. Neff, Reno.

Executive Secretary: Mr. Nelson B. Neff, 3660 Baker Lane, Reno.

New Mexico Medical Society

OFFICERS—1971-72—Terms of officers and committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1972 Annual Session.

President: Vaun T. Floyd, Albuquerque.

President-Elect: Don R. Clark, Roswell.

Vice President: Armin T. Keil, Raton.

Secretary-Treasurer: Ronald V. Dorn, Jr., Albuquerque.

Immediate Past President: Harry D. Ellis, Santa Fe.

Speaker, House of Delegates: William J. Hossley, Deming.

Vice Speaker, House of Delegates: Rex G. Quigley, Hobbs.

Delegate to A.M.A.: Allan Haynes, Clovis.

Alternate Delegate to A.M.A.: Emmit M. Jennings, Roswell.

Scientific Editor for New Mexico, Rocky Mountain Medical Journal: Marcus J. Smith, Santa Fe.

Assistant Scientific Editor for New Mexico, Rocky Mountain Medical Journal: William S. Curran, Albuquerque.

Associate Editor for New Mexico, Rocky Mountain Medical Journal: Mr. Ralph R. Marshall, Albuquerque.

Executive Secretary: Mr. Ralph R. Marshall, 3010 Monte Vista Blvd., NE, Albuquerque; Telephone (505) 265-8494.

Assistant Executive Secretary: Mr. Thomas A. Bodnar, Albuquerque.

Utah State Medical Association

OFFICERS—1970-71—Terms of officers and committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: Russell M. Nelson, Salt Lake City.

President-Elect: Merrill C. Daines, Logan.

Past President: John H. Rupper, Provo.

Honorary President: A. M. Okelberry, Salt Lake City.

Secretary: Allan H. Barker, Salt Lake City.

Treasurer: Ralph C. Richards, Salt Lake City.

Delegates to A.M.A.: Drew M. Petersen, Ogden; Homer E. Smith, Salt Lake City.

Alternate Delegates to A.M.A.: Merrill C. Daines, Logan; Alan P. Macfarlane, Salt Lake City.

Speaker, House of Delegates: William R. Christensen, Granger.

Vice Speaker, House of Delegates: Wm. Knox Fitzpatrick, Salt Lake City.

Scientific Editor for Utah, Rocky Mountain Medical Journal: Alan E. Lindsay, Salt Lake City.

Associate Editor for Utah, Rocky Mountain Medical Journal:: Mr. Hoyt W. Brewster, Salt Lake City.

Executive Secretary: Mr. Hoyt W. Brewster, 42 South Fifth East St., Salt Lake City. Telephone (801) 355-7477.

Wyoming State Medical Society

OFFICERS—1970-71—Terms of officers and committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1971 Annual Session.

President: Fenworth M. Downing, Sheridan.

President-elect: William G. Erickson, Lander.

Vice President: Donald F. Mahnke, Casper.

Secretary: Paul R. Yedinak, Rock Springs.

Treasurer: Donald B. Hunton, Cheyenne.

Delegate to A.M.A.: Harlan B. Anderson, Casper.

Alternate Delegate to A.M.A.: Thomas A. Nicholas, Buffalo.

Speaker of the House: Goode R. Cheatham, Jr., Casper.

Vice Speaker of the House: Norman R. Black, Cheyenne.

Scientific Editor for Wyoming, Rocky Mountain Medical Journal: Francis A. Barrett, Cheyenne.

Associate Editor for Wyoming, Rocky Mountain Medical Journal: Mr. Robert Smith, Cheyenne.

Executive secretary: Mr. Robert Smith, P.O. Box 1367, Cheyenne, Wyoming 82001. Telephone (307) 632-5525.

Publication rules and suggestions to authors

1. Who may submit articles. The Rocky Mountain Medical Journal ordinarily accepts only articles prepared by members of the state societies we serve and by guest speakers at their official meetings.

2. Method of preparation. All material for publication must be typewritten, double spaced, with liberal margins, using only one side of the paper, pages consecutively numbered, and preferably on standard 8½ x 11 white bond paper. Carbon copies are *not* acceptable.

Title (preferably short) and author's name, city and state must appear at the top of the first page. Second and subsequent pages should be identified with consecutive page numbers and author's surname. If physician authors possess more than one degree, the MD only is used. Lesser degrees of non-MD authors or co-authors may be used.

Please include beneath the title or at the top of the first page a brief paragraph stating what the article is designed to show and, therefore, why it should be read. This introductory feature is, in editorial parlance, called the "blurb"; it is printed in bold type.

3. Where to submit material. All copy must be sent to the editor for the state in which the material originates. Editors for each state, with their mailing addresses, are listed monthly on the Table of Contents page of the Journal.

4. Acceptance or rejection. The state editor will (1) tentatively accept the article, (2) return it to the author with suggestions for revision, or (3) reject it. He will edit and forward approved copy to the publication office in Denver for final editing and scheduling.

5. Order of publication. Ordinarily, articles will be published in the order received. Those whose value is seasonal, whose value would be lost if publication is delayed, or which reflect priority of original research, are given special consideration. State presidential addresses, programs, state society minutes, and timely organization announcements are given priority.

6. Length of articles. Scientific papers should be "boiled down" not to exceed ten pages of double-spaced typewritten standard 8½ x 11 inch sheets. Shorter papers are more acceptable to editors and readers, and earlier publication is probable. Every journal is in competition for the reader's time, and condensation is the order of the day. For this reason, and because of financial and space limitations, we request that copy be condensed to the greatest extent consistent with conveying the message.

7. Illustrations. A limited number of illustrations or "cuts," usually up to six, will ordinarily be accepted within our own publication budget if the editor believes they enhance the value of the article. Clear photos, simple diagrams or line drawings in black on white, printing rather than writing, reproduce well. Cuts should be mounted separately, and the paper or cardboard mounts should be the same size as that upon which the article is typed. Each should have its caption below: Fig. 1, Fig. 2, etc., with a short descriptive sentence. Authors will be billed our cost for excess above six cuts.

8. Tables. Tables should be simple, presenting only brief relevant data, amply spaced. They should be placed at the back of the manuscript on separate sheets. Each should have its number and title above: Table 1, Title; Table 2, Title; etc. Long, large, or complicated tables ordinarily are not acceptable.

9. Case reports. Case reports are popular with our readers. A brief introductory statement concerning the condition or disease, tells why the case is presented. The report follows with a separate heading, CASE REPORT or CASE 1, CASE 2, etc. Include only relevant, positive laboratory and other data. Names, initials, and numbers are unimportant; age, sex, and sometimes occupation are significant. Minimize dates; then make it month, date, year—as February 9, 1969; not 2/9/69. After the case presentation, review or sum it up under a heading such as Discussion, Comment, Summary or Conclusion.

10. Footnotes. Footnotes must be brief. One at the bottom of the first page should state the Society and date of presentation, and institutional origin, if any. Special titles or position of the author, acknowledgements, etc., will be added according to simplicity, editorial policy and discretion.

11. References. Reference lists rarely add to the value of an article for the majority of readers. We will make every effort to publish short reference lists, but long ones will be deleted. Incidentally, the proper heading is "References," not "Bibliography." The latter implies everything in the literature upon the subject. Make them uniform in style and brief, as: Jones, W. K.: Pyelonephritis in Infancy. JAMA 141:75. 1964.

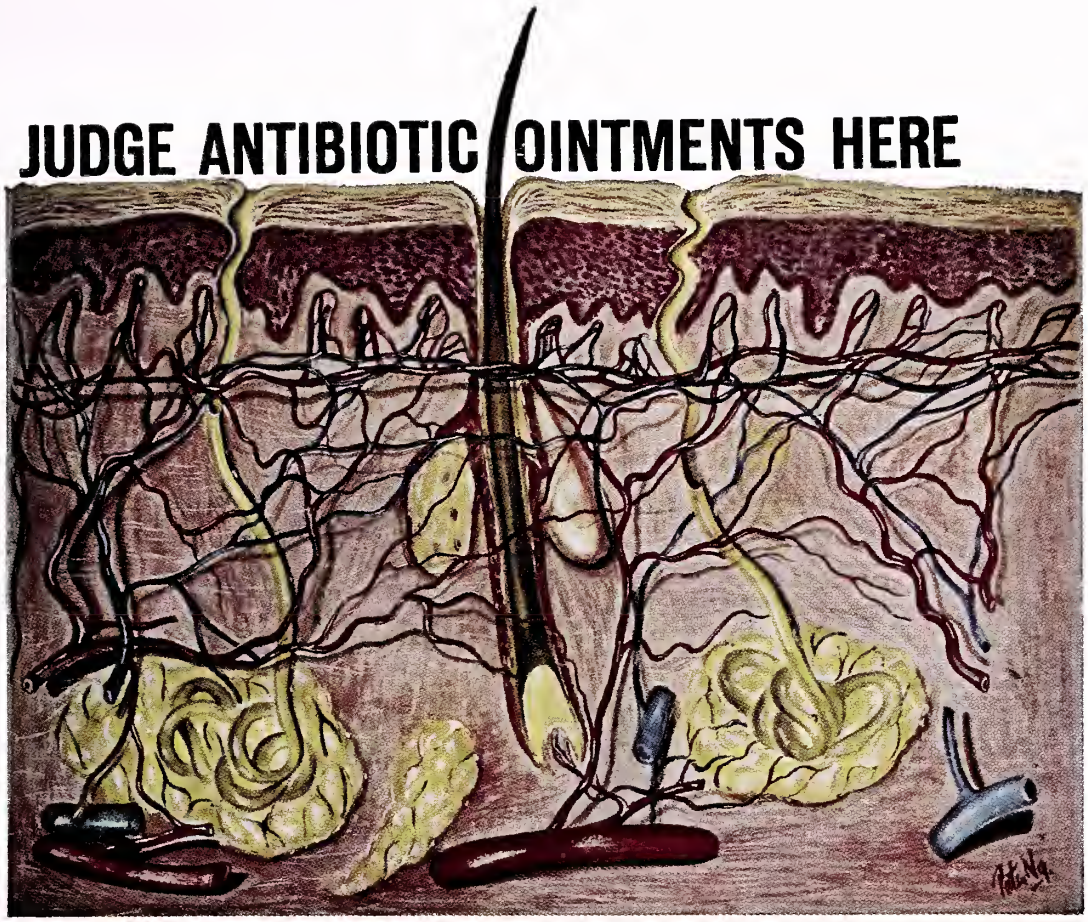
12. Editorials. We would like to have more submitted by our State editors and the membership at large. Readers must get tired of thunder from publication headquarters in Denver; frankly, we do too! Speak out, and we'll sign your name, initials, or respect your request for anonymity, as you choose. If you don't like something we do or say, please let us in on it; we could even stand to hear about it if something happens to please you. A "Letter to the Editor" may help you get something off your mind. We're asking for it and we have a place to put it—in the Journal, that is!

13. Proofs. Galley proofs are submitted to the author, and prompt return is essential. Authors should correct typographical, grammatical, or rhetorical errors, but do not reinsert or rewrite sentences, paragraphs, tables, etc., which an editor may have deleted, condensed, or paraphrased. When an article reaches the galley-proof stage, the author may NOT re-edit his article; that is the privilege of the Journal's editors.

14. Reprints. Most authors desire reprints. Our printing firm provides them on a non-profit basis. They MUST be ordered when the author submits his corrected proof.

15. Our Journal is copyrighted. We and most state and regional journals owned by state medical societies have granted each other continuing copyright permission to copy or quote with proper credit. Copyright permission is not granted to commercial or privately owned publications.

JUDGE ANTIBIOTIC OINTMENTS HERE



Results on skin are final proof of any topical antibiotic's effectiveness

No in vitro test can duplicate a clinical situation on living skin. 'Neosporin' (polymyxin B—bacitracin—neomycin) Ointment has consistently proven its effectiveness in thousands of cases of bacterial skin infection. The spectra of the three antibiotics overlap in such a way as to provide bactericidal action against most pathogenic bacteria likely to be found topically. Diffusion of the antibiotics from the special petrolatum base is rapid since they are insoluble in the petrolatum, but readily soluble in tissue fluids. The Ointment is bland and nonirritating.

Caution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

Supplied: Tubes of 1 oz., ½ oz. with applicator tip, and ⅛ oz. with ophthalmic tip.

Complete literature available on request from Professional Services Dept. PML.

'NEOSPORIN'®

brand

POLYMYXIN B-BACITRACIN-NEOMYCIN OINTMENT

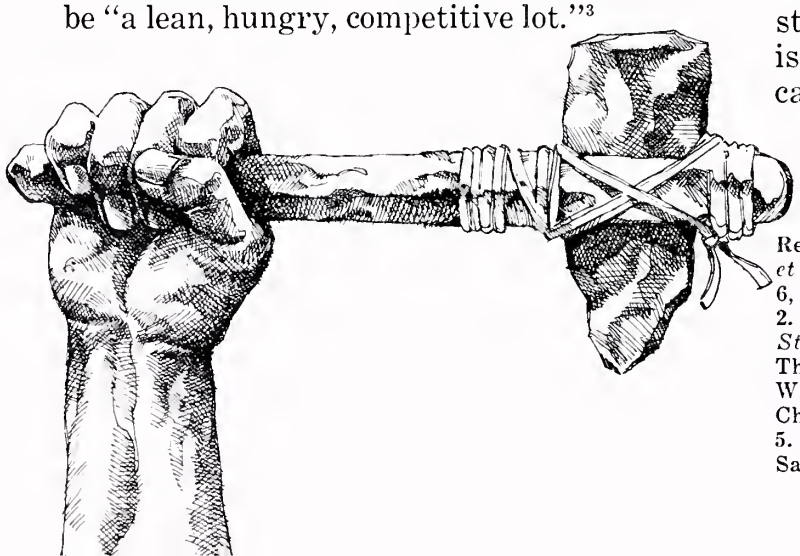
BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N.Y.

IF MORE MEN CRIED

At least seventy-five out of one hundred adults with duodenal ulcers are men.[1] Why? It may be significant that duodenal ulcer patients tend to crave recognition and are "especially vulnerable to threats to their manly assertive independence."[2]

Hypersecretion—an atavistic response. Stewart Wolf, who, with Harold G. Wolff, studied the personalities of duodenal ulcer patients, wonders if masculine competitiveness is related to "an atavistic urge to devour an adversary." It is striking, he reports, that an accentuation of gastric acid secretion and motility can be "induced in ulcer patients by discussions that arouse feelings of inadequacy, frustration and resentment."[2]

By chance? A lean, hungry lot. Was the link between emotions and gastric hyperacidity acquired through mutation to serve a purpose? During man's jungle period of evolution, the investigator points out, a male dealt with a foe by killing and devouring it. "It may be more than coincidence," he concludes, that peptic ulcer patients appear to be "a lean, hungry, competitive lot."[3]



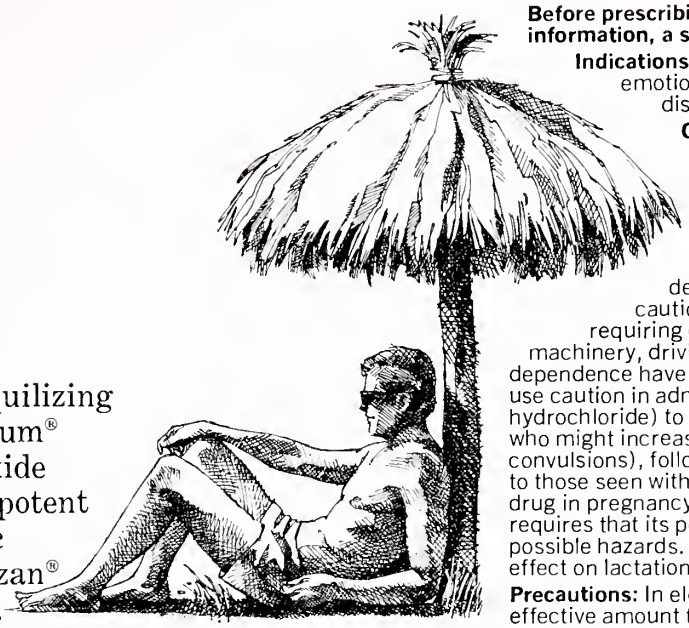
Big boys don't cry. If more men crie maybe fewer would wind up with duodena ulcers. But men will be men—the sum total c their genes and what the are taught. Schottstaed observes that when mother admonishes he son who has hurt himse that big boys don't cry, sh is teaching hi stoicism.[4] Crying is th negation of everythin society thinks of as manly A boy starts defending hi manhood at an early ag

Take away stres you can take away symptom

There is no question that stress plays role in the etiology of duodenal ulce Alvarez[5] observes that many a man with a ulcer loses his symptoms the day he shuts u the office and starts out on a vacation. Th problem is, the type of man likely to have a ulcer is the type least likely to take lon vacations or take it easy at work.

The rest cure vs. the two-way action o Librax.® For most patients, the rest cure i as unrealistic as it is desirable. Still, th stress factor must be dealt with. And her is where the dual action of adjunctive Libra can help. Librax is the only drug that com

References: 1. Silen, W.: "Peptic Ulcer," in Wintrobe, M. M *et al.* (eds.): *Harrison's Principles of Internal Medicine*, e 6, New York, McGraw-Hill Book Company, 1970, p. 144 2. Wolf, S., and Goodell, H. (eds.): *Harold G. Wolff Stress and Disease*, ed. 2, Springfield, Ill., Charles Thomas, 1968, pp. 68-69. 3. *Ibid.*, p. 257. 4. Schottstaed W. W.: *Psychophysiologic Approach in Medical Practic* Chicago, Ill., The Year Book Publishers, Inc., 1960, p. 16 5. Alvarez, W. C.: *The Neuroses*, Philadelphia, Pa., W. I Saunders Company, 1951, p. 384.



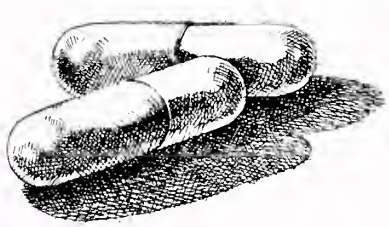
bines the tranquilizing action of Librium® (chlordiazepoxide HCl) with the potent anticholinergic action of Quarzan® (clidinium Br).

Protects man from his own hungry personality. The action of Librium reduces anxiety—helps protect the vulnerable patient from the psychological overreaction to stress that clutches his stomach. At the same time, the action of Quarzan helps quiet the hyperactive gut, decreasing hypermotility and hypersecretion.

An inner healing environment with 1 or 2 capsules, 3 or 4 times daily. Of course, there's more to the treatment of duodenal ulcer than a prescription for Librax. The patient—with your guidance—will have to adjust to a different pattern of living if treatment is to succeed. During this adjustment period, 1 or 2 capsules of Librax 3 or 4 times daily can help establish a desirable environment for healing.

Librax: It can't change man's nature. But it can usually make it easier for men to cope with the discomfort of stress—both psychic and gastric—that can precipitate and exacerbate duodenal ulcer.

Librax: Rx #60 1 cap. *a.c.* and 2 *h.s.*



Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

in the treatment of duodenal ulcer adjunctive

Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

DOCTOR:

Speak Out

about National Health Plans

WE ARE.

Practice Management Services is preparing for its turn before the Senate Committee.
As the largest medical management consulting firm in the Rocky Mountain States, we feel that it is our obligation to carry the views of Rocky Mountain physicians to Washington, D. C.

Please take just a few minutes to send us your thoughts on National Health Planning. We pledge that your opinions will go to Washington.

You may address your comments to:

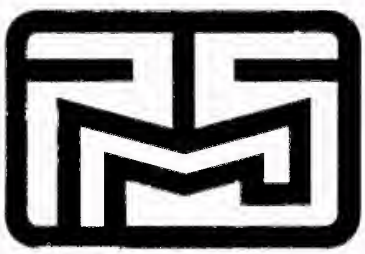
JAMES G. MEADOR, President
PRACTICE MANAGEMENT SERVICES
601 BROADWAY
DENVER, COLORADO 80203

or

ERNST BEHR, Director
PUBLIC & GOVERNMENTAL AFFAIRS
PRACTICE MANAGEMENT SERVICES
601 BROADWAY
DENVER, COLORADO 80203

Or call your local PMS consultant:

Albuquerque, N.M.	Herb Hughes	(505) 298-5809
Albuquerque, N.M.	Joe Listek	(505) 298-5809
Billings, Montana	Harry Miller	(406) 248-6203
Boulder, Colorodo	George Hunt	(303) 444-3149
Colo. Spgs., Colo.	Geo. Schromeyer	(303) 598-2042
Denver, Colorado	Dick McMullen	(303) 986-2394
Denver, Colorado	Jim Meador	(303) 623-7165
Denver, Colorodo	Ed Rarden	(303) 623-7165
Ogden, Utah	Doyle Allen	(801) 394-5828
Santa Fe, N. M.	Don Hughes	(505) 983-1314



PRACTICE MANAGEMENT SERVICES

WANT ADS

MEDICAL SUITE FOR RENT in modern 3 man clinic. Fully furnished consultation room with 2 adjoining examining rooms. Includes use of 4 aides, fully equipped lab, physiotherapy room, X-ray room, EKG room, reception room and business office. Contact: Harold E. Gilman, M.D., 3405 Downing Street, Denver, Colorado (303) 623-6171. 771-3-4B

GENERALIST FOR INTERESTING, active practice excluding OB. Adequate vacation and Postgraduate Study time. Salary commensurate with experience and productivity. Early opportunity for partnership. Year round out-door recreation with casual living in beautiful country. No state income tax. Start October 1, 1971. Contact: Allen L. Sklar, M.D., Lakeview Medical Associates Ltd., 774 Mays Boulevard, P.O. Drawer 1029, Incline Village, Nevada 89450, Phone: (702) 831-0420. 671-2-3

SEPARATE OFFICE SPACE available to Board Qualified internist. Retainer fee for assigned hours for coverage of emergency room. Staff privileges in adjacent hospital. Nevada Medical Properties, Inc., 1401 East Lake Mead Blvd., North Las Vegas, Nevada 89030. 671-5-4B

SEPARATE OFFICE SPACE available for general practitioner. Adjacent to hospital with staff opening. If desirous may supplement income by covering emergency room on assigned hours. Nevada Medical Properties, Inc., 1401 East Lake Mead Blvd., North Las Vegas, Nevada 89030. 671-3-4B

INSTANT SUCCESS—no investment required—present physician is returning to residency as soon as replacement is found. Large Family Practice is immediately available. Located fifteen miles from Austin on I.H. 35. Very modern 3,000 sq. ft. office fully equipped, located in a rapidly developing area. The practice could support two physicians. Please reply—Rt. 1, Box 11, Buda, Texas 78610. 771-6-2B

PHYSICIAN—NEVADA offers clean air, unexcelled recreational facilities, rural living minutes from Reno, 4 hours from San Francisco. Welfare Medical Care Officer, civil service position, exceptional fringe benefits include regular hours. Call collect: Minor L. Kelso, Chief, Medical Services (702) 882-7581. 871-1-2B

VAIL CONDOMINIUM: Treat yourself and/or your out-of-town guests to a few days of luxury at summer rates that are comparable to motel prices. Sleeps 6 plus. Preferred rates given to local physicians. Call W. L. Reimers, M.D., 322-6174. 871-2-3B

NEAR LAKE GRANBY COLORADO—10 acres or more; stream, hay meadows, large aspen, pine. Close to ski areas. Sale and financing by owner. Ten per cent down. Phone (303) 466-2412. 871-3-3B

WANTED—REPUTABLE PHYSICIANS to occupy new store space in high class shopette around the corner from Cherry Creek School. Englewood Properties Company, 3401 S. Bannock, Englewood, Colo. Call 781-7950. 871-4-1B

ORTHOPEDIC SURGEON—Take over active and well established practice now. Completely furnished office, including x-ray and P.T. May be used solo or two man association. Close to 5 major hospitals. Equipment negotiable. John E. Gardell, M.D., 1570 Humboldt, Denver, Colorado 80218 or call collect (303) 222-4821. 871-5-2

25-YEAR OLD PRACTICE in Colorado Springs for sale. Close to downtown area. Office space and equipment available. Wonderful practice and exceptional clientele. Would turn over records and introduce. Contact: Bernice H. Tyner, M.D., 527 No. Tejon, Colorado Springs, Colorado 80902. 871-6-1

THE BRIGHTON, COLORADO AREA is growing rapidly and needs additional physicians. Internist, GP, ObGyn, Pediatrics, Orthopedics. Accredited hospital. 20 miles from Denver. Fine community for children. Contact F. C. Sage, Administrator, Brighton Community Hospital, Brighton, Colorado 80601. (303) 659-1531. 871-7-4B

GENERAL PRACTITIONER WANTED to join four man group in growing Western Nevada. Good hospital situation. Excellent remuneration including paid group insurance, malpractice insurance, retirement fund, vacation, and early partnership. Wide variety of year-round recreational facilities. Contact: Box 871-8-2, Rocky Mountain Medical Journal, 1809 E. 18th Avenue, Denver, Colorado 80218. 871-8-2

SEPARATE OFFICE SPACE available to Board Qualified orthopedic surgeon. Retain fee for assigned hours for coverage of emergency room. Staff privileges in adjacent hospital. Nevada Medical Properties, Inc., 1401 East Lake Mead Boulevard, North Las Vegas, Nevada 89030. 671-4-4B

BROADMOOR yourselves

for the pure pleasure of it all!

Discover America's finest resort facilities, dining and accommodations, here within 5,000 acres of enjoyment at the gateway to the Colorado Rockies.

The BROADMOOR Colorado Springs, Colorado

ARTIFICIAL EYES

Plastic eyes and glass eyes specially made to fit the most difficult cases. An expert eye-maker is in our office at all times to give your patients the satisfaction they must have. In business since 1906.

Write or phone for full details.

DENVER OPTIC COMPANY

330 University Bldg. • 16th and Champa • 825-0229

Denver, Colorado 80202

THE EMORY JOHN BRADY HOSPITAL

401 Southgate Road **COLORADO SPRINGS, COLORADO 80906** **MElrose 4-8828**

E. JAMES BRADY, M.D., *Medical Director*

CAMPBELL F. RICE, *Superintendent*

Francis A. O'Donnell, M.D.
Robert W. Davis, M.D.
Richard L. Conde, M.D.
Paul A. Draper, M.D.
Charles W. McClellan, M.D.
James E. Edwards, M.D.

For the care and treatment of Psychiatric disorders.

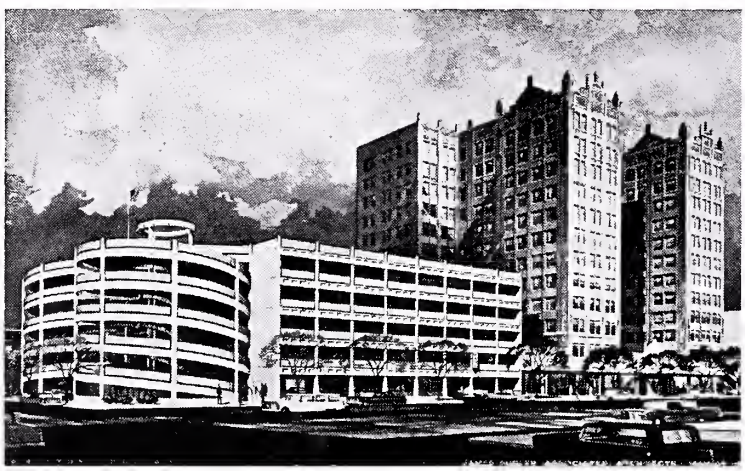
Individual and Group Psychotherapy and Somatic Therapies.

Occupational, diversional and outdoor activities.

X-ray, Clinical Laboratory and Electroencephalography.

CENTRALLY LOCATED

For the medical and dental professions



Here, in the heart of downtown Denver, the Republic Building is the best-known Medical-Dental Center in the Rocky Mountain West, complete with 24-hour operation, X-ray; pathological and dental laboratories, pharmacy, drug and supply stores.

With the completion of the new 500-car, self-service parking facility, the Republic Building—designed and operated for the medical and dental professions—offers the ultimate in patient-convenience and medical facilities.

Space is available. Ask for illustrated brochure.

REPUBLIC BUILDING CORPORATION

306 REPUBLIC BUILDING, DENVER, COLORADO 80202
PHONE 534-5271

Income Protection for Doctors

As a member of the Colorado Medical Society you can purchase up to $1,000.00 a month in disability income protection at special money-saving rates.

These benefits are TAX-FREE — not subject to any Federal Income Tax. They're yours to spend as you see fit — for your regular living expenses or for whatever other purpose you choose.

So don't take chances! Offer your family the extra income protection your Colorado Medical Society Plan can provide. Get all the facts on this great coverage by filling out and mailing the coupon below today.

Mutual of Omaha®
The Company that pays

Life Insurance Affiliate: United of Omaha
Mutual of Omaha Insurance Company
Home office: Omaha, Nebraska

Colorado Division Office
2nd Floor, Railway Exchange Bldg.
Denver, Colorado 80202

Please rush me full details on the Colorado Medical Society's Disability Income Protection Plan.

Name.....

Address.....

City.....State.....Zip.....

2-5-8-11-71

INDEX TO ADVERTISERS

American College of Cardiology 58

Arch Laboratories
Dicarbosil 3

Berbert, George and Sons 34

Broadmoor Hotel 65

Burroughs Wellcome and Company
Neosporin 61

Campbell Soup Company
Asparagus 41

Colorado College of Medical and Dental Assistants 47

Denver Optic Company 65

Emory John Brady Hospital 66

Lilly, Eli & Company
Cordran Tape 8

McNeil Laboratories
Parafon Forte 7

Mutual of Omaha 67

National Drug Company
AVC 35
Orenzyme 36
Tepanil 17
Quinamm 18

Newton Optical Company 45

Picker Medical Products 40

Practice Management Services 64

Publishers Press/
Monitor Publications 15

Republic Building Corporation 66

Robins, A. H. & Company
Robinul 42-43

Roche Laboratories
Efudex ..... Cover II, Page 1
Noludar 16
Librax 62-63
Librium ..... Cover IV

Searle, G. D. & Company
Flagyl ..... 68, Cover III

Smith, Kline and French Laboratories
Thorazine 6

USV Pharmaceutical Co.
DBI 4-5

You can't
treat one
without
the other.

NEW MEXICO ISSUE

Program of
16th Biennial Rocky Mountain
Medical Conference and
68th Annual Meeting of Nevada
State Medical Association
Las Vegas, Nevada.....page 17-22

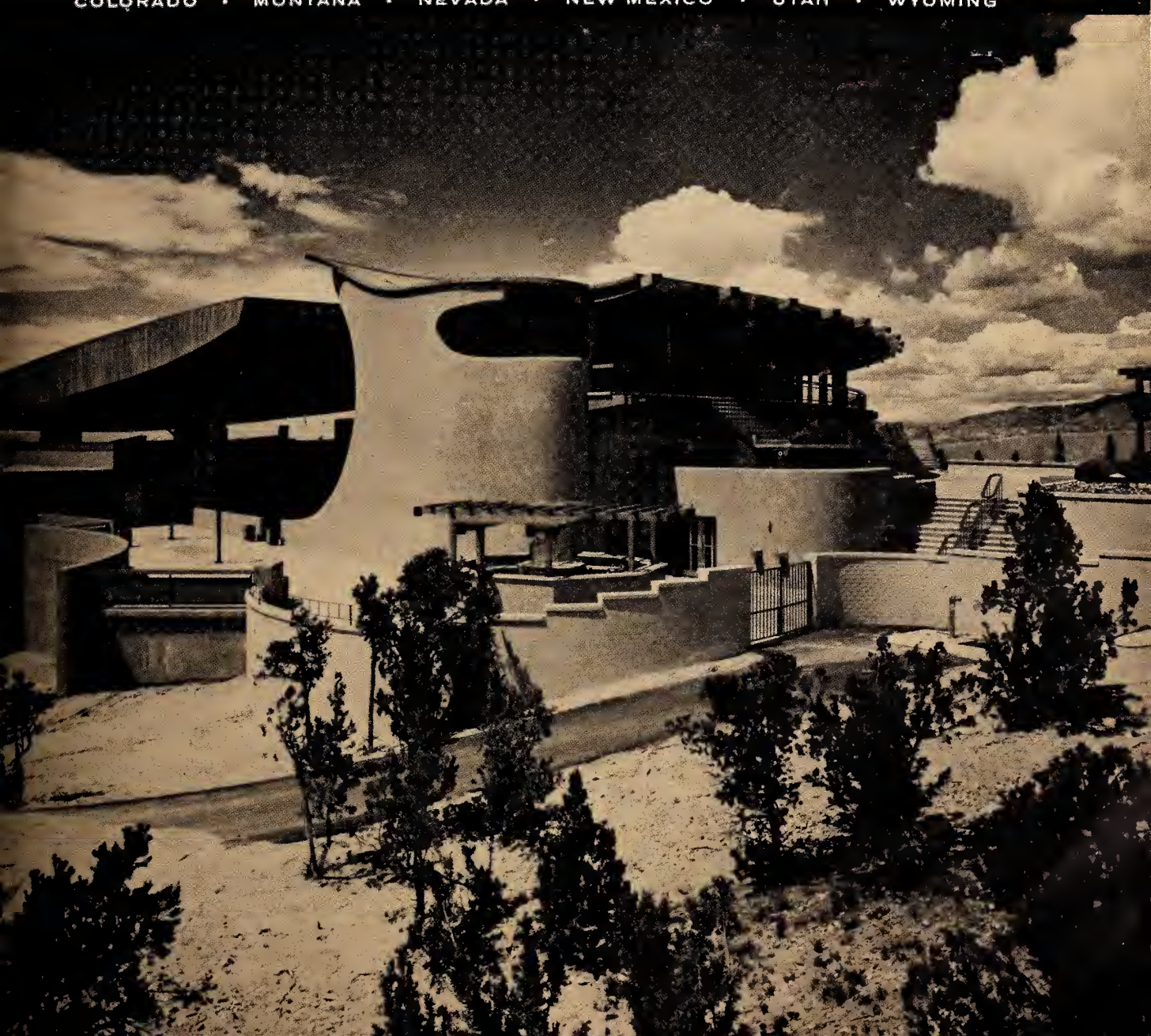
NDS
LIBRARY OF THE
COLLEGE OF PHYSICIANS
OF PHILADELPHIA
SEP 24 1971

Rocky Mountain Medical Journal

September 1971

VOLUME 68 • NUMBER 9

COLORADO • MONTANA • NEVADA • NEW MEXICO • UTAH • WYOMING



Call it what you will, it may be premalignant.

Before

3/29/67 Before therapy with 5%-FU cream. Patient P. T. shows a moderately severe solar keratotic involvement. Note residual scarring from the previous cryosurgical and electrosurgical procedures on forehead and ridge of nose adjacent to periauricular area.

After

6/12/67 Seven weeks after cessation of therapy. Reactions have subsided. Residual scarring is not seen except for that due to prior surgery. Inflammation has disappeared and face is clear of keratotic lesions.

ROCHE
Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

nd Efudex® (fluorouracil) 5% cream can resolve it.

dit actinic, solar or senile keratoses, ay regard it as "precancerous."[1,2]

pi.l fluorouracil, considered by some dermatologists to be a major ve:ce in the treatment of multiple solar keratoses,[3,4] offers the physi- n relatively inexpensive alternative to cryosurgery, electrodesic- di and cold knife surgery. Of the topical fluorouracils available, only ix offers 2% and 5% solution and 5% cream formulations—formula- n hat have proved effective in the treatment of these mutliple lesions.

sul duration of therapy, 2 to 4 weeks.

ic s showed that with the 2% and 5% Efudex preparations, the usual re on of therapy was only 2 to 4 weeks.[5] Other studies with topical ɔ uracil revealed that when concentrations of less than 2% were d ignificant numbers of lesions recurred.[6]

ts the lesions you can't see, too.

n rous lesions, not apparent prior to 2% and 5% Efudex therapy, n ested themselves by definite reactions, while intervening skin n ed relatively unaffected.[5] The early eradication of these subclini- l ions (which may otherwise have undergone further progression) l ly accounts for the reduced incidence of future solar keratoses in i ts treated with topical fluorouracil—especially with 5% c trations.[6]

to identify solar keratoses.

ɔ lly, the lesion—a flat or slightly elevated brown to red-brown ɔ —is dry, rough, adherent and sharply defined. Multiple lesions f e rule.

ictable therapeutic response.

sponse to a typical course of Efudex therapy is usually t teristic and predictable. After 3 or 4 days of treatment, erythema i to appear in the area of keratoses. This is followed by a moderate n nse inflammatory response, scaling and occasionally moderate i ness or pain. The height of this response generally occurs two d after the start of therapy and then begins to subside as treatment s ped. Within two weeks of discontinuing medication, the a mation is usually gone. Lesions that do not respond should b sied.

es: 1. Allen, A. C.: *The Skin, A Clinicopathological Treatise*, ed. 2, New York, Stratton, 1967, p. 842. 2. Dillaha, C. J.; Jansen, G. T, and Honeycutt, W. M.: ent of Actinic Keratoses with Topical Fluorouracil," in Waisman, M. (ed.): *eutical Therapeutics in Dermatology*, Springfield, Ill., Charles C Thomas, 1968, Belisario, J. C.: *Cutis, 6*:293, 1970. 4. Sams, W. M.: *Arch. Derm., 97*:14, 1968. n file, Hoffmann-La Roche Inc., Nutley, New Jersey. 6. Williams, A. C., and : *Cancer, 25*:450, 1970.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

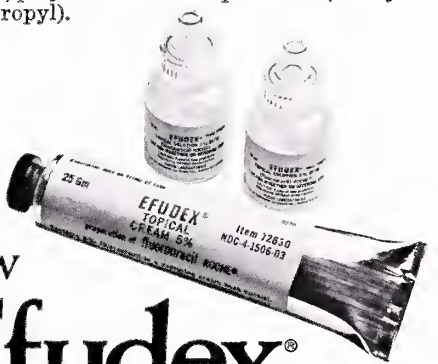
Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).



now

Efudex®

(fluorouracil)

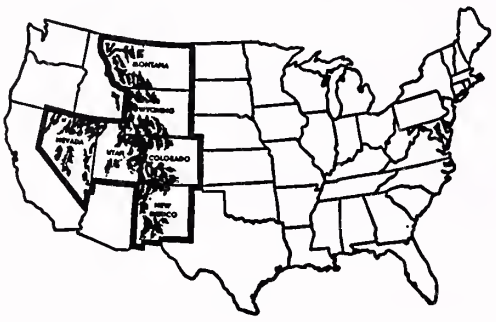
cream/solution

ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

SEPTEMBER 1971

Volume 68, Number 9



Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222 (area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204

Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

Address all manuscripts, organization and other news items relating to editorial content to appropriate state editor, see below.

Editorials

25 CURRENT APPROACHES TO CONTINUING EDUCATION

26 PHYSICIAN DISTRIBUTION IN NEW MEXICO

Articles

29 UPPER GASTROINTESTINAL BLEEDING AMONG NAVAJO INDIANS — *Albert L. Muggia, MD, Albuquerque, New Mexico*

33 THE ABUSED CHILD — *Nancy M. Riley, Urbana, Illinois*

37 MEDICAL PROBLEMS AMONG RURAL HIPPIES — *J. David Curb and Joel Trujillo, Albuquerque, New Mexico*

41 PROPRANOLOL: AN ADJUNCT TO DEFINITIVE TREATMENT OF THYROTOXICOSIS — *Ralph C. Friedenberg, MD, Albuquerque, New Mexico*

46 ACUTE HYPOKALEMIA OCCURRING DURING THE TREATMENT OF DIABETIC ACIDOSIS — *Ulton G. Hodgin, Jr., MD, Albuquerque, New Mexico*

49 HEARING LOSS IN PRESCHOOL NEW MEXICO CHILDREN — *J. Albert Browder, MD, Albuquerque, New Mexico*

53 RURAL HEALTH CARE IN NEW MEXICO — *Ray Sanchez and Gaither Bynum, Albuquerque, New Mexico*

59 PRIMARY PULMONARY HISTIOCYTOSIS X IN A FEMALE PATIENT — *James C. Kraner, MD, and Rodger E. Mac Quigg, MD, Albuquerque, New Mexico*

63 TATTOOS OF HEROIN ADDICTS IN NEW MEXICO — *David A. Bennahum, MD, Albuquerque, New Mexico*

Organization

17-22 16TH BIENNIAL ROCKY MOUNTAIN MEDICAL CONFERENCE AND ANNUAL MEETING OF NEVADA STATE MEDICAL ASSOCIATION

68 COLORADO

68 MONTANA

Features

3 LETTERS TO THE EDITOR

44 POTPOURRI — *Compiled by Andrew M. Babey, MD, Las Cruces, New Mexico*

68 OBITUARIES

69 BOOK CORNER

70 MEDICAL SCHOOL NOTES

73 MEETINGS

76 WANT ADS

77 INDEX TO ADVERTISERS

OUR COVER PHOTO

The Santa Fe Opera theater nestles between the Sangre de Cristo and Jemez mountain ranges in northern New Mexico. Built in 1968 after fire destroyed the previous theater, the new opera house is not only one of the best equipped opera theaters in the United States but is also one of the most attractive. The two-month summer opera festival regularly features a premiere as well as works from the standard and not-so-standard repertory. The company has just celebrated its fifteenth anniversary. Credit: New Mexico Department of Development.

EDITORIAL BOARD

Colorado: Douglas W. Macomber, M.D., Scientific Editor, 1800 High St., Denver (Chairman of the Board); Carl H. McLauthlin, M.D., Assistant Scientific Editor, 510 Republic Bldg., Denver.

Montana: Gerald A. Diettert, M.D., Scientific Editor, 501 W. Broadway, P. O. Box 1307, Missoula, Montana 59801; L. Russell Hegland, Associate Editor, 1236 North 28th Street, Billings.

Nevada: Harry J. McKinnon, M.D., Scientific Editor, 3196 Maryland Pkwy. S., Las Vegas; Wesley W. Hall, M.D., Assistant Scientific Editor, 607 N. Arlington Ave., Reno; Nelson B. Neff, Associate Editor, 3660 Baker Lane, Reno.

New Mexico: Marcus J. Smith, M.D., Scientific Editor, Coronado Bldg., Santa Fe; William S. Curran, M.D., Assistant Scientific Editor, 920 Stanford NE, Albuquerque; Ralph R. Marshall, Associate Editor, 3010 Monte Vista Blvd., NE, Albuquerque.

Utah: Alan E. Lindsay, M.D., Scientific Edit, 699 East South Temple, Salt Lake City; H W. Brewster, Associate Editor, 42 South Fi East Street, Salt Lake City.

Wyoming: Francis A. Barrett, M.D., Scienti Editor, 1616 E. 19th St., Cheyenne; Rob Smith, Associate Editor, P. O. Box 1387, Cheyenne.

Donald G. Derry, Managing Editor

Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations: It is the Official Journal of the Rocky Mountain Medical Conference and those medical societies who are represented on the Editorial Board listed above.

Advertising: National representative: State Journals West, 693 Sut Street, San Francisco, California 94102.

Subscription: $7.00 per year in advance, postpaid in the United Sta and its possessions; single copy 60c plus postage. Subscription is cluded in medical society dues of sponsoring state medical organi tions.

Copyright: This Journal is copyright, 1971, by the Colorado Medi Society. Requests for permission to reproduce anything from t columns of this Journal should be addressed to the Journal Off

Second class postage paid at Denver, Colorado

To the Editor:

The appalling insensitivity evidenced in the article "Electroshock, Effete or Essential?" (June, '71) can only reflect negatively on the medical profession as a whole, and particularly on the *Rocky Mountain Medical Journal* for having published it. Nowhere in the entire article is there any consideration or even *mention* given to the possibility of adverse effects on mental function or abilities. Instead, we have case reports (nothing, by the way, that would even remotely approach statistical evidence) which characterize the benefits almost exclusively in terms of skin color, muscle tone, and reasonable conformity.

What is particularly frightening about this article is the specific recommendation of electroshock for all kinds of disorders of adolescents "on a spectrum from 'Adjustment reaction of adolescence,' through 'Anti- social personality' to Schizophrenia, paranoid type." The adolescents described, acknowledged by the author to be quite numerous, seem very little outside of what could be considered normal in our society, exhibiting "paranoid trends manifested mainly as a distrust of authority." Dr. Conde notes that "they are conspiratorily companionable with young people with similar disorders and thus give the appearance of being sociable." How many young people who are otherwise quite normal or might naturally grow out of their troubled state, are included in this category?

This article raises important questions about the legitimate power of psychiatrists to impose such a "therapy" as electroshock against a patient's will. The author notes that there continues to be marked resistance from the more "intelligent" patients. Electroshock, as portrayed in this article, sounds like a wonderful instrument for State control—the result is a docile, cooperative youth, capable of a "comfortable productive role in society" who is no longer obsessed or even concerned with the problems and shortcomings of the society. One immediately conjures up visions of a *1984* ruled by psychiatrists who can remove any rebellious or nonconforming thought from the minds of the subjects by application of the proper "therapy."' Certainly such a questionable practice should not be allowed to continue free from any controls and without regard for the rights of the patient.

Robert L. Apter
President, University of Colorado Student Component Society (University of Colorado Medical Center)

The sign of the good life at Vail.

Incomparable Vail. Perched like a Swiss Village high in the Colorado Rockies. Abounding with charming restaurants and enchanting boutiques. But the majestic mountains are Vail's raison d'etre. Endless ski runs through miles of powder. Mammoth bowls of untracked snow, calling the skier for one more run.

And now the jewel to cap Vail's crown: Scorpio, Vail's newest luxury condominium. When completed, in late 1971, the 5-story Scorpio will offer its 30 tenants such amenities as 2 bedroom —2 bath units, all-electric kitchens, front and rear balconies, moss-rock fireplaces, and soundproof construction. Underground parking will also be available. All this within walking distance of both of Vail's gondolas. In-house management will be available to handle rentals of your condominium when you aren't able to use it. And the Scorpio is a tax-sheltered investment you'll enjoy.

Prices start at $41,400. For further information send the coupon. But do it soon, as 12 units have already been sold.

The Skiland Corporation
The Satellite Building
411 Lakewood Circle
Colorado Springs, Colorado 80910

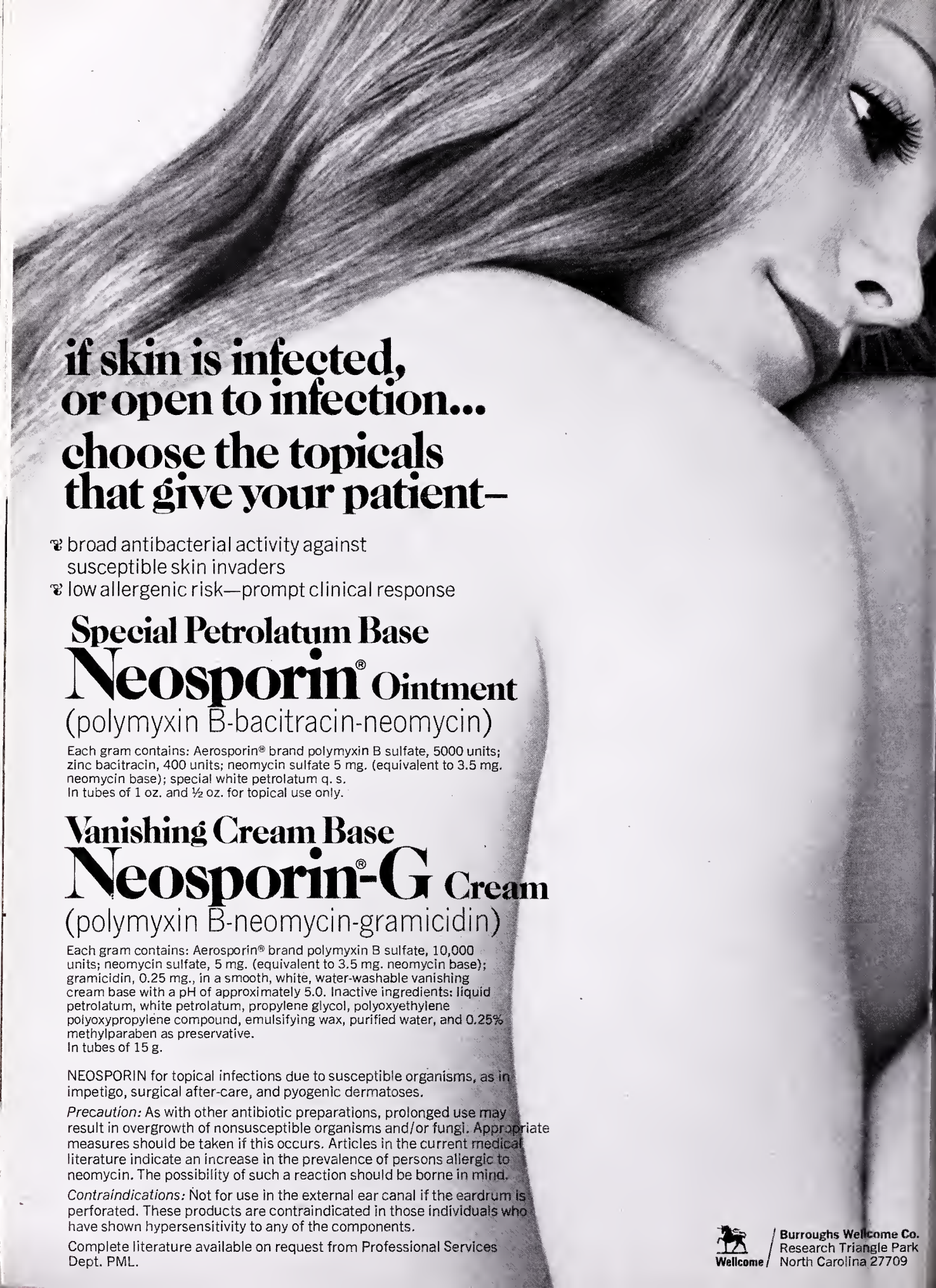
Please send me more information on Scorpio.

Name _____

Address _____

City/State/Zip _____

Phone _____



if skin is infected, or open to infection...

choose the topicals that give your patient–

- broad antibacterial activity against susceptible skin invaders
- low allergenic risk—prompt clinical response

Special Petrolatum Base
Neosporin® Ointment
(polymyxin B-bacitracin-neomycin)

Each gram contains: Aerosporin® brand polymyxin B sulfate, 5000 units; zinc bacitracin, 400 units; neomycin sulfate 5 mg. (equivalent to 3.5 mg. neomycin base); special white petrolatum q. s.
In tubes of 1 oz. and ½ oz. for topical use only.

Vanishing Cream Base
Neosporin®-G Cream
(polymyxin B-neomycin-gramicidin)

Each gram contains: Aerosporin® brand polymyxin B sulfate, 10,000 units; neomycin sulfate, 5 mg. (equivalent to 3.5 mg. neomycin base); gramicidin, 0.25 mg., in a smooth, white, water-washable vanishing cream base with a pH of approximately 5.0. Inactive ingredients: liquid petrolatum, white petrolatum, propylene glycol, polyoxyethylene polyoxypropylene compound, emulsifying wax, purified water, and 0.25% methylparaben as preservative.
In tubes of 15 g.

NEOSPORIN for topical infections due to susceptible organisms, as in impetigo, surgical after-care, and pyogenic dermatoses.

Precaution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: Not for use in the external ear canal if the eardrum is perforated. These products are contraindicated in those individuals who have shown hypersensitivity to any of the components.

Complete literature available on request from Professional Services Dept. PML.

Wellcome / **Burroughs Wellcome Co.**
Research Triangle Park
North Carolina 27709

Change this word in your vocabulary and your patient will get an Upjohn product and a low price.

E-Mycin® available in 250 mg tablets.

JA71-1585
©1971 The Upjohn Company

The Upjohn Company
Kalamazoo, Michigan 49001

Upjohn

gastritis

when G-I symptoms demand a potent synthetic anticholinergic

move up to "the Robinul response"

In treating hypersecretion and hypermotility associated with gastritis are you disappointed in the results you've been getting with some of the synthetics? Then *move up* to a potent anticholinergic—Robinul® Forte (2 mg. glycopyrrolate). It provides prompt, pronounced, prolonged suppression of gastric hypersecretion, making it a highly effective agent in gastritis and other upper G-I conditions associated with hypersecretion and hypermotility. Because Robinul Forte exerts a profound antispasmodic action, it is also useful in the treatment of lower G-I disorders, such as functional bowel distress and spastic and irritable colon. If the patient has a "one tract mind" concerning his condition, you can help control the anxiety and tenseness by prescribing Robinul®-PH Forte (2 mg. glycopyrrolate with 16.2 mg. phenobarbital —warning: may be habit forming).

Robinul® 2 mg. Forte (glycopyrrolate)

■ **INDICATIONS** Robinul Forte (glycopyrrolate, 2 mg.) and Robinul-PH Forte are double-strength dosage forms of glycopyrrolate. They are primarily indicated for patients who are less responsive to anticholinergic therapy and for control of the more prominent symptomatology associated with acute episodes of gastrointestinal disorders. Emphasis should be on total management, with due consideration of the various therapeutic modalities available, including diet, antacids, anticholinergic agents, sedatives, and attention to emotional problems. Accordingly, glycopyrrolate is recommended in the management of gastrointestinal disorders amenable to anticholinergic therapy, such as: (1) duodenal ulcer, duodenitis, pylorospasm; (2) gastric ulcer, gastritis, esophageal hiatal hernia, hyperchlorhydria, pyrosis, aerophagia, gastroenteritis; (3) esophagitis; (4) cholecystitis, chronic pancreatitis; (5) spastic and irritable colon, ulcerative colitis, functional bowel distress, diverticulitis, acute enteritis, diarrhea; and (6) splenic flexure syndrome, neurogenic gastrointestinal disturbances. When these conditions are associated with psychic overlay, the formulation with phenobarbital may be indicated. ■ **CONTRAINDICATIONS** Glaucoma, urinary bladder neck obstruction, pyloric obstruction, stenosis with significant gastric retention, prostatic hypertrophy, duodenal obstruction, cardiospasm (megaesophagus), and achalasia of the esophagus, and in the case of Robinul-PH Forte (glycopyrrolate with phenobarbital), sensitivity to phenobarbital. ■ **PRECAUTIONS** Administer with caution in the presence of incipient glaucoma. ■ **SIDE EFFECTS** The most frequent side effect noted during clinical trials was dry mouth. Thirty-three (3.3%) of 1,009 patients receiving 1 to 32 mg. of glycopyrrolate a day complained of dry mouth of moderate to severe degree, but only 11 discontinued treatment because of this. Blurred vision, constipation, and urinary hesitancy have been reported infrequently. Other side effects associated with the use of anticholinergic drugs include: tachycardia, palpitation, dilatation of the pupil, increased ocular tension, weakness, nausea, vomiting, headache, dizziness, drowsiness, and rash. ■ **DOSAGE** The average and maximum recommended dose of Robinul Forte (glycopyrrolate, 2 mg.) or Robinul-PH Forte is one tablet three times daily (in the morning, early afternoon, and at bedtime). To obtain optimum results, dosage should be adjusted to the individual patient's response. After the more severe symptoms associated with acute conditions have subsided, the dose may be reduced to the minimum required to maintain symptomatic relief. ■ **SUPPLY** Robinul Forte (glycopyrrolate, 2 mg.) is available as scored, compressed pink tablets engraved AHR/2 in bottles of 100 and 500. ■ Robinul-PH Forte (glycopyrrolate, 2 mg., with phenobarbital, 16.2 mg.) is available as scored, compressed blue tablets engraved AHR/2 in bottles of 100 and 500.

A. H. Robins Company, Richmond, Va. A·H·ROBINS

now...

for the stable adult diabetic who needs higher doses of a reliable oral hypoglycemic...

new DBI®-TD 100 mg.

(phenformin HCl)

timed-disintegration capsules

- a higher dosage strength for use in the overweight, maturity-onset diabetic if diet alone fails
- a biguanide...not a sulfonylurea
- new dosage flexibility
- low patient cost

new DBI®-TD 100 mg.
(phenformin HCl)
timed-disintegration capsules

lowers elevated blood sugar

Secondary to its blood sugar lowering effect, DBI-TD probably decreases insulin oversecretion and thus may help reduce lipogenesis and facilitate lipolysis. This may account for the clinically reported reduction in weight and lowering of serum cholesterol levels in the overweight and hypercholesteremic diabetic patient.

usually well tolerated

Mainly gastrointestinal side effects may occur. However, as with many drugs, you should keep in mind that higher dosages may increase the incidence. Hypoglycemic reactions are rare when DBI-TD is used alone.

to prescribe DBI®-TD (phenformin HCl) if diet alone fails specify

DBI-TD 50 mg. for the newly diagnosed overweight, stable adult diabetic
DBI-TD 100 mg. for the overweight, adult-onset diabetic who needs higher doses of a reliable oral hypoglycemic

Indications: Stable adult diabetes mellitus; sulfonylurea failures, primary and secondary. **Contraindications:** Diabetes mellitus that can be regulated by diet alone; juvenile diabetes that is uncomplicated and well regulated on insulin; acute complications of diabetes (metabolic acidosis, coma, infection, gangrene); surgery; severe hepatic disease; renal disease with uremia; cardiovascular collapse, after disease states associated with hypoxemia. **Warning:** Use during pregnancy is to be avoided. Until adequate data on the effects of DBI on the human fetus are available, such use can be considered experimental. **Precautions: Starvation Ketosis,** which must be differentiated from "insulin lack" ketosis, and is characterized by ketonuria in spite of relatively normal blood and urine sugar, may result from excessive DBI therapy, excessive insulin reduction or insufficient carbohydrate intake. Adjustment of DBI-TD or insulin dosage, or supplying carbohydrates, alleviates this state. DO NOT GIVE INSULIN WITHOUT FIRST CHECKING BLOOD AND URINE SUGARS. **Lactic Acidosis:** DBI is not recommended in the presence of azotemia or in any clinical situation that predisposes to sustained hypotension that could lead to lactic acidosis. To differentiate lactic acidosis from ketoacidosis, it is recommended that periodic determinations of ketones in the blood and urine be made in diabetics previously stabilized on DBI, or DBI and insulin, who have become unstable. If electrolyte imbalance is suspected, periodic determinations should also be made of electrolytes, pH and the lactate-pyruvate ratio. DBI should be withdrawn and insulin, when required, and other corrective measures instituted immediately upon the appearance of any metabolic acidosis. **Hypoglycemia:** Although hypoglycemic reactions are rare when DBI is used alone, every precaution should be observed during the dosage adjustment period, particularly when insulin or a sulfonylurea has been given in combination with DBI. **Adverse Reactions:** Principally gastrointestinal, occurring more often at higher dosage levels; unpleasant metallic taste, continuing to anorexia, nausea and, less frequently, vomiting and diarrhea. Reduce dosage at first sign of these symptoms. In case of vomiting, DBI should be immediately withdrawn. Although rare, urticaria and gastrointestinal symptoms following excessive alcohol intake have been reported. **Dosage:** 25 mg.-300 mg. daily. **How Supplied:** 50 mg. timed-disintegration capsules, bottles of 100 and 1000; 100 mg. timed-disintegration capsules, bottles of 100 and 500. **Also Available:** DBI tablets 25 mg., bottles of 100 and 1000.

USV PHARMACEUTICAL CORP., Tuckahoe, New York 10707

USV

Mylanta®
24 million hours a day.

Through the day, every day,
ulcer patients take
one million doses of Mylanta
for relief of ulcer pain.

Mylanta®
LIQUID/TABLETS

aluminum and magnesium hydroxides plus simethicone

Good taste = patient acceptance
Relieves G.I. gas distress*
Non-constipating

*with the defoaming action of simethicone

Stuart PHARMACEUTICALS Pasadena, Calif. 91109
Division of Atlas Chemical Industries, Inc., Wilmington, Del. 19899

Picture of low back pain

treated with Parafon Forte® TABLETS

Paraflex® (chlorzoxazone)* 250 mg.
Tylenol® (acetaminophen) 300 mg.

Parafon Forte tablets help to relieve pain, restore mobility . . . stop pain-spasm feedback

Here is why. PARAFON FORTE provides:

a nonsalicylate analgesic equal to aspirin for relief of pain,[1,2] yet unlikely to cause the gastric irritation[2,3] or increased bleeding time[4] associated with aspirin therapy.

and a skeletal muscle relaxant shown in extensive clinical studies to be useful in a variety of low back disorders[5-7] ...but which is not an antihistamine or tranquilizer derivative and is unlikely to produce a tranquilizing or sedative effect.[8]

Prescribe PARAFON FORTE for effective spasmolysis and analgesia in acute sprains, strains and myalgias of the lower back, including acute exacerbations of chronic conditions. Your patients will appreciate the restored comfort and freedom of movement it usually provides.

McNEIL LABORATORIES, INC., FT. WASHINGTON, PA. 19034

McNEIL

Contraindications: Sensitivity to either component. ***Warnings:*** *Usage in Pregnancy*—Use in woman of child-bearing potential only when potential benefits outweigh possible risks. ***Precautions:*** Exercise caution in patients with known allergies or history of drug allergies. If a sensitivity reaction or signs or symptoms suggestive of liver dysfunction are observed, the drug should be stopped. ***Adverse Reactions:*** Occasionally, drowsiness, dizziness, lightheadedness, malaise, overstimulation or gastrointestinal disturbances may be noted; rarely, allergic-type skin rashes, petechiae, ecchymoses, angioneurotic edema or anaphylactic reactions. In rare instances, *Paraflex* (chlorzoxazone) may possibly have been associated with gastrointestinal bleeding. While *Paraflex* (chlorzoxazone) and chlorzoxazone-containing products have been suspected as being the cause of hepatic toxicity in approximately eighteen patients, it was not possible to state that the dysfunction was or was not drug induced. ***Usual Adult Dosage:*** Two tablets q.i.d. ***Supplied:*** Scored, light green tablets, imprinted "McNEIL" —bottles of 100.

References: **1.** Batterman, R. C., and Grossman, A. J.: Fed. Proc. *14*:316, 1955. **2.** Goodman, L. S., and Gilman, A., ed.: The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970. **3.** Vickers, F. N.: Gastroint. Endosc. *14*:94, 1967. **4.** Mielke, C. H., Jr., and Britten, A. F. H.: New Engl. J. Med. *282*:1270, 1970 (Corresp.). **5.** Kestler, O. C., and Gyurik, J.: Industr. Med. Surg. *21*:372, 1962. **6.** Forster, S., et al.: Amer. J. Orthop. *2*:285, 1960. **7.** Data on file, McNeil Laboratories, Inc. **8.** Friend, D. G.: Clin. Pharmacol. Ther. *5*:871, 1964.

*U.S. PATENT NO. 2,895,877

THE NIGHT SHIFT OF DEPRESSION...

Depression is a 24-hour-a-day problem... and disturbed sleep is often its nocturnal expression. In fact, such disturbance may be a key symptom in establishing the diagnosis of depression.

WHEN THE DIAGNOSIS IS DEPRESSION

ELAVIL® HCl

(AMITRIPTYLINE HCl | MSD)

TABLETS: 10 mg, 25 mg, and 50 mg
INJECTION: 10 mg/cc

When depression is serious enough to warrant medication, ELAVIL HCl may prove extremely helpful. Unlike psychic energizers or agents that merely elevate mood, ELAVIL HCl embodies a mild antianxiety action which manifests itself even before the fundamental antidepressant activity of the drug becomes evident. Daytime drowsiness occurs in some patients, usually within the first few days of therapy.

NOTE: Not recommended during the acute recovery phase following myocardial infarction. Patients with cardiovascular disorders should be watched closely; arrhythmias, sinus tachycardia, and prolongation of the conduction time have been reported, particularly with high doses; myocardial infarction and stroke have been reported with drugs of this class. Close supervision is required for hyperthyroid patients or those receiving thyroid medication. Concurrent electroshock therapy may increase the hazards of therapy; such treatment should be limited to patients for whom it is essential. Discontinue the drug several days before elective surgery if possible. Should not be given to patients who have received an MAOI within two weeks.

Contraindications: Known hypersensitivity. Should not be given concomitantly with or within at least 14 days following the discontinuance of a monoamine oxidase inhibitor. Then initiate dosage of amitriptyline HCl cautiously with gradual increase in dosage until optimum response is achieved. Not recommended during the acute recovery phase following myocardial infarction or for patients under 12 years of age.

Warnings: May block the antihypertensive action of guanethidine or similarly acting compounds. Should be used with caution in patients with a history of seizures or urinary retention, or with narrow-angle glaucoma or increased intraocular pressure. Patients with cardiovascular disorders should be watched closely; arrhythmias, sinus tachycardia, and prolongation of the conduction time have been reported, particularly with high doses; myocardial infarction and stroke have been reported with drugs of this class. Close supervision is required for hyperthyroid patients or those receiving thyroid medication. May impair mental and/or physical abilities required for performance of hazardous tasks, such as operating machinery or driving a motor vehicle. Safe use during pregnancy and lactation has not been established; in pregnant patients, nursing mothers, or women who may become pregnant, weigh possible benefits against possible hazards to mother and child.

Precautions: When used to treat the depressive component of schizophrenia, psychotic symptoms may be aggravated; in manic-depressive psychosis, depressed patients may experience a shift toward the manic phase, and paranoid delusions, with or without associated hostility, may be exaggerated; in any of these circumstances, it may be advisable to reduce the dose of amitriptyline HCl, or to use a major tranquilizing drug, such as perphenazine, concurrently.

When given with anticholinergic agents or sympathomimetic drugs, close supervision and careful adjustment of dosages are required. May enhance the response to alcohol and the effects of barbiturates and other CNS depressants. The possibility of suicide in depressed patients remains during treatment and until significant remission occurs; this type of patient should not have easy access to large quantities of the drug. Concurrent electroshock therapy may increase the hazards of therapy; such treatment should be limited to patients for whom it is essential. Discontinue the drug several days before elective surgery if possible.

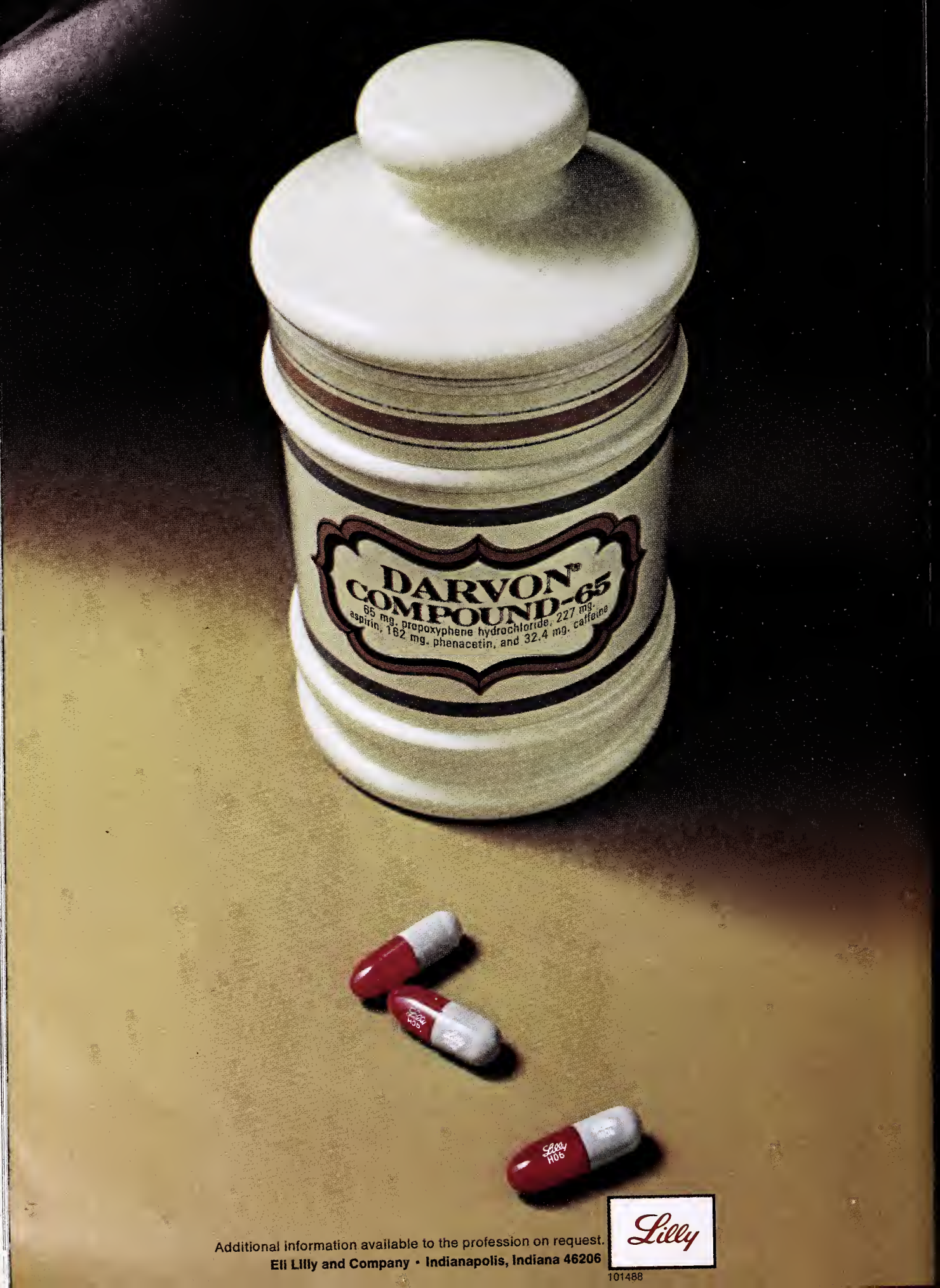
Adverse Reactions: *Note:* Included in this listing are a few adverse reactions not reported with this specific drug. However, pharmacological similarities among the tricyclic antidepressant drugs require that each reaction be considered when amitriptyline is administered.

Cardiovascular: Hypotension, hypertension, tachycardia, palpitation, myocardial infarction, arrhythmias, heart block, stroke. *CNS and Neuromuscular:* Confusional states; disturbed concentration; disorientation; delusions; hallucinations; excitement; anxiety; restlessness; insomnia; nightmares; numbness, tingling, and paresthesias of the extremities; peripheral neuropathy; incoordination; ataxia; tremors; seizures; alteration in EEG patterns; extrapyramidal symptoms. *Anticholinergic:* Dry mouth, blurred vision, disturbance of accommodation, constipation, paralytic ileus, urinary retention, dilatation of urinary tract. *Allergic:* Skin rash, urticaria, photosensitization, edema of face and tongue. *Hematologic:* Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia. *Gastrointestinal:* Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, parotid swelling. *Endocrine:* Testicular swelling and gynecomastia in the male, breast enlargement and galactorrhea in the female, increased or decreased libido. *Other:* Dizziness, weakness, fatigue, headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, drowsiness, jaundice. *Withdrawal Symptoms:* Abrupt cessation of treatment after prolonged administration may produce nausea, headache, and malaise; these are not indicative of addiction.

How Supplied: Tablets containing 10 mg and 25 mg amitriptyline HCl, in single-unit packages of 100 and bottles of 100, 1000, and 5000; tablets containing 50 mg amitriptyline HCl, in single-unit packages of 100 and bottles of 100 and 1000; for intramuscular use, in 10-cc vials containing per cc: 10 mg amitriptyline HCl, 44 mg dextrose, and 1.5 mg methylparaben and 0.2 mg propylparaben as preservatives.

For more detailed information, consult your MSD representative or see the Direction Circular. Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, Pa. 19486

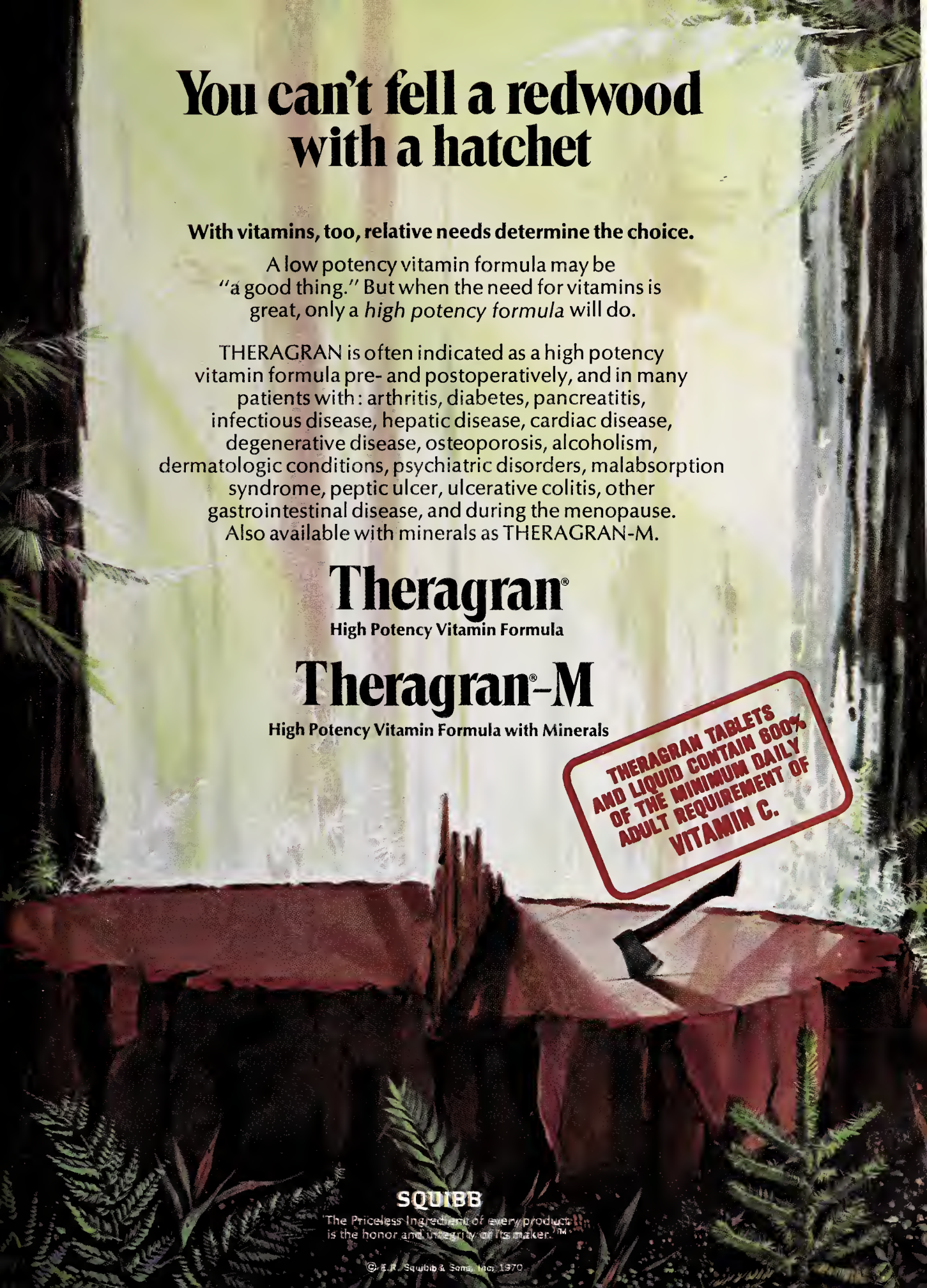
MSD MERCK SHARP & DOHME


DARVON® COMPOUND-65
65 mg. propoxyphene hydrochloride, 227 mg. aspirin, 162 mg. phenacetin, and 32.4 mg. caffeine
Lilly H06
Lilly H06

Additional information available to the profession on request.
Eli Lilly and Company • Indianapolis, Indiana 46206

Lilly

101488


You can't fell a redwood with a hatchet
With vitamins, too, relative needs determine the choice.
A low potency vitamin formula may be "a good thing." But when the need for vitamins is great, only a high potency formula will do.
THERAGRAN is often indicated as a high potency vitamin formula pre- and postoperatively, and in many patients with: arthritis, diabetes, pancreatitis, infectious disease, hepatic disease, cardiac disease, degenerative disease, osteoporosis, alcoholism, dermatologic conditions, psychiatric disorders, malabsorption syndrome, peptic ulcer, ulcerative colitis, other gastrointestinal disease, and during the menopause. Also available with minerals as THERAGRAN-M.
Theragran®
High Potency Vitamin Formula
Theragran®-M
High Potency Vitamin Formula with Minerals
THERAGRAN TABLETS AND LIQUID CONTAIN 600% OF THE MINIMUM DAILY ADULT REQUIREMENT OF VITAMIN C.
SQUIBB
"The Priceless Ingredient of every product is the honor and integrity of its maker."™
© E.R. Squibb & Sons, Inc. 1970

Thorazine®
brand of chlorpromazine
versatility
quality
experience
NOW THERE'S A PRICE
Smith Kline & French Laboratories SK&F

SIXTEENTH BIENNIAL

Rocky Mountain Medical Conference

and the

68th Annual Meeting of
The Nevada State Medical Association

October 21-24, 1971

THE SANDS HOTEL
Las Vegas, Nevada

A joint enterprise of

Colorado Medical Society
Idaho Medical Association
Montana Medical Association
Nevada State Medical Association
New Mexico Medical Society
Utah State Medical Association
Wyoming State Medical Society

Photo Courtesy of Sands Hotel

The Rocky Mountain Medical Conference

What It Is — What It Does

The Rocky Mountain Medical Conference is a self-sustaining joint enterprise of seven state medical societies. The Conference was founded in 1935 and held its first biennial meeting in 1937.

The basic purpose is to bring Rocky Mountain area physicians together for an outstanding scientific program—and for renewed regional associations and friendship. The conference exists solely for these purposes. It does not elect officers, indulge in medical politics or consider resolutions or pronouncements. Meetings are held biennially, usually in conjunction with the host state's annual meeting, and upon invitation from a participating state association. The Chairman of the forthcoming host state's R.M.M.C. Committee is Chairman of the Conference's "Continuing Committee" for the next two years and Chairman of that Conference. The Conference obtains operating revenue from registration and exhibit fees, and over the years has built up a small reserve fund.

Members of the Rocky Mountain Medical Conference for 1971 are:

COLORADO, IDAHO, MONTANA, NEVADA,
NEW MEXICO, UTAH
AND WYOMING

Registration At R.M.M.C.

Registration at the Rocky Mountain Medical Conference is open to any Doctor of Medicine. Registration is not limited to physicians within the seven states which participate in managing the Conference.

A registration fee of $25.00 will be required of all Doctors. No fee will be charged physician members of the Armed Forces in uniform, nurses and guest speakers.

Each physician will be given an identification badge, and admission to all conference activities will be by badge only.

The R.M.M.C. Runs by the Clock!

The Scientific programs of the Rocky Mountain Medical Conference are run by the clock, to the minute. This has been true of the previous meetings, and it will be true this year.

All meetings will begin on time, all speakers will be required to begin their presentations exactly on time and none will be permitted to speak longer than as scheduled in the program.

All who attend the Conference are requested to assist the speakers and benefit themselves by being in the meeting room a few minutes in advance of the papers they wish to hear. Any member who arrives late to hear any particular paper is assured that he will miss part of that paper! Also, his late arrival would be disturbing to the speaker and the audience alike.

Hotel Reservations

Headquarters for the Conference will be the Sands Hotel. Blocks of rooms have been set aside to accommodate doctors and their families attending the Rocky Mountain Medical Conference.

Pocket Program

A final program for the 16th Biennial Rocky Mountain Conference, complete with additional details not available for this Program Issue of the *Journal,* will be published in pocket size and will be available to all registrants at the meeting. For additional program information, write to: Rocky Mountain Medical Conference, Nevada State Medical Association, 3660 Baker Lane, Reno, Nevada 89502.

Special Events

FUTURE SHOCK—ITS DIAGNOSIS AND TREATMENT, Friday and Saturday afternoons, 2:00-5:00 p.m.

Presidents' Reception, Saturday, 7:00-8:00 p.m.

Banquet, 8:00 p.m., Saturday. **The Hon. Winston S. Churchill, M.P.,** whose subject will be THE SOVIET THREAT AND THE MIDDLE EAST CRISIS.

AMPAC Breakfast, 7:00 a.m., Saturday.

Past Presidents' Breakfast, 7:00 a.m. Sunday.

Recreation

Las Vegas is unparalleled in its recreational facilities for the entire family. Activities to appeal to every taste await your pleasure.

Golf	Fishing	Swimming
Horseback Riding	Sightseeing	Bowling
Bicycle Riding	Tennis	. . . and more

GUEST SPEAKERS

L. Matthew N. Bach, Ph.D.
Director, Division of Biomedical Sciences,
School of Medical Sciences,
University of Nevada
Reno, Nevada

Myrvin H. Ellestad, M.D.
Director, Division of Clinical Physiology
Memorial Hospital of Long Beach,
Long Beach, California

Felix O. Kolb, M.D.
Clinical Professor of Medicine and
Associate Director, Metabolic Research Unit,
University of California Hospital,
San Francisco, California

Laurence E. Earley, M.D.
Professor of Medicine,
University of California School of Medicine,
San Francisco, California

Edward Bixler, Ph.D.
Sleep Research and Treatment Facility,
Pennsylvania State University
College of Medicine,
Hershey, Pennsylvania

Peter V. Van Schoonhoven, M.D.
Medical Director,
Blood Services,
Scottsdale, Arizona

L. Frederick Fenster, M.D.
Clinical Associate Professor of Medicine,
University of Washington School of Medicine,
Seattle, Washington

Bruce G. MacMillan, M.D.
Chief of Staff,
Shriners Hospitals for Crippled Children,
Burns Institute
Cincinnati, Ohio

David S. Rubsamen, M.D., LL.B.
Editor, Professional Liability Newsletter,
Berkeley, California

Howard R. Bierman, M.D.
Beverly Hills, California

Stanley J. Dudrick, M.D.
Associate Professor of Surgery,
University of Pennsylvania
School of Medicine,
Philadelphia, Pennsylvania

Hon. Winston S. Churchill, M.P.

Program

16th Biennial Rocky Mountain Medical Conference

and the

68th Annual Meeting of the Nevada State Medical Association

October 20-24, 1971

Wednesday, October 20

7:30 p.m.—Nevada State Medical Association Executive Committee

Thursday, October 21

1:30 p.m.—Nevada State Medical Association House of Delegates

Friday, October 22

8:30 a.m.—Brain Mechanism in Aggression
L. MATTHEW N. BACH, Ph.D.

9:10 a.m.—Cardiovascular Response to Exercise in Health and Ischemic Heart Disease
MYRVIN H. ELLESTAD, M.D.

9:50 a.m.—Medical Management of Renal Stones
FELIX O. KOLB, M.D.

10:30 a.m.—View Exhibits

11:00 a.m.—Edema Formation and the Use of Diuretics
LAURENCE E. EARLEY, M.D.

11:40 a.m.—Evaluation, Diagnosis and Treatment of Disturbed Sleep
EDWARD BIXLER, Ph.D.

12:20 p.m.—Blood Component Therapy
PETER V. VAN SCHOONHOVEN, M.D.

2–5 p.m.—Future Shock—Its Diagnosis and Treatment
What Are the Problems?
What Are the Constraints?

Saturday, October 23

7:00 a.m.—AMPAC Breakfast

8:30 a.m.—Drugs and Toxin-Associated Liver Disease
L. FREDERICK FENSTER, M.D.

9:10 a.m.—Current Concepts of Optimal Care of the Burn Patient
BRUCE G. MacMILLAN, M.D.

9:50 a.m.—The Growth of Medical Malpractice Litigation in the Context of Social Change
DAVID S. RUBSAMEN, M.D., LL.B.

10:30 a.m.—View Exhibits

11:00 a.m.—Problems of Informed Consent
DAVID S. RUBSAMEN, M.D., LL.B.

11:40 a.m.—New Tissue Specific Anti-Cancer Agents
HOWARD R. BIERMAN, M.D.

12:20 p.m.—General Principles of Technique of Intravenous Hyperalimentation
STANLEY J. DUDRICK, M.D.

2–5 p.m.—Future Shock—Its Diagnosis and Treatment
Getting the Patient to the Doctor
Possible New Solutions

Sunday, October 24

7:00 a.m.—Past Presidents' Breakfast

9:00 a.m.—Nevada State Medical Association House of Delegates

WOMAN'S AUXILIARY TO NEVADA STATE MEDICAL ASSOCIATION

Annual Meeting, Friday afternoon and Saturday morning. Luncheon on Saturday. Wives of registered physicians are welcome to attend all events.

ROCKY MOUNTAIN MEDICAL CONFERENCE CONTINUING COMMITTEE

COLORADO: Edward J. Donovan, George H. Curfman, Jr., Thomas W. Moffatt, Bertram L. Pear, all of Denver.

IDAHO: Elmer M. Wright, Twin Falls, Chairman; Richard G. Gresham, Pocatello; Duane A. Daugharty, Coeur d'Alene; Donald D. Price, Caldwell.

MONTANA: George J. Moffitt, Livingston, Chairman; Ward E. Benkelman, Polson; John W. Heizer, Billings; D. Frank Johnson, Billings; C. R. Svore, Missoula; Ex-officio: Richard L. Peterson, Hamilton; Robert P. Yost, Missoula.

NEVADA: Harry J. McKinnon, Jr., Las Vegas, Chairman; Theodore Jacobs, Las Vegas; William R. Feltner, Reno; Joseph M. George, Jr., Las Vegas; Thomas K. Hood, Elko.

NEW MEXICO: Marcus J. Smith, Santa Fe, Chairman; William C. Curran, Albuquerque; James R. Gay, Albuquerque; William Hentel, Albuquerque; Walter J. Hopkins, Lovington.

UTAH: Alan E. Lindsay, Salt Lake City, Chairman; Mr. Hoyt W. Brewster, Salt Lake City.

WYOMING: Howard P. Greaves, Rock Springs, Chairman; Ray K. Christensen, Powell; Herrick J. Aldrich, Sheridan; Roy W. Holmes, Casper; Ross J. Collie, Lander.

Transfer a patient to a Medicenter. This frees a hospital bed for a seriously ill patient who needs acute care services. All Medicenters are conveniently near hospitals. Thus transfers are quick, easy and usually at no cost to the patient.

Medicenter patients are on the road to recovery. And, at Medicenter, these patients continue to receive professional care at a sub-acute level at significantly less cost than is possible in an acute hospital.

Medicenter offers a number of benefits to both patients and physicians. The greatest advantage to physicians is that Medicenter frees beds in hospitals for more of his seriously ill patients. In addition to considerably lower costs, the patients enjoy a pleasant, restful atmosphere which is conducive to rapid recovery.

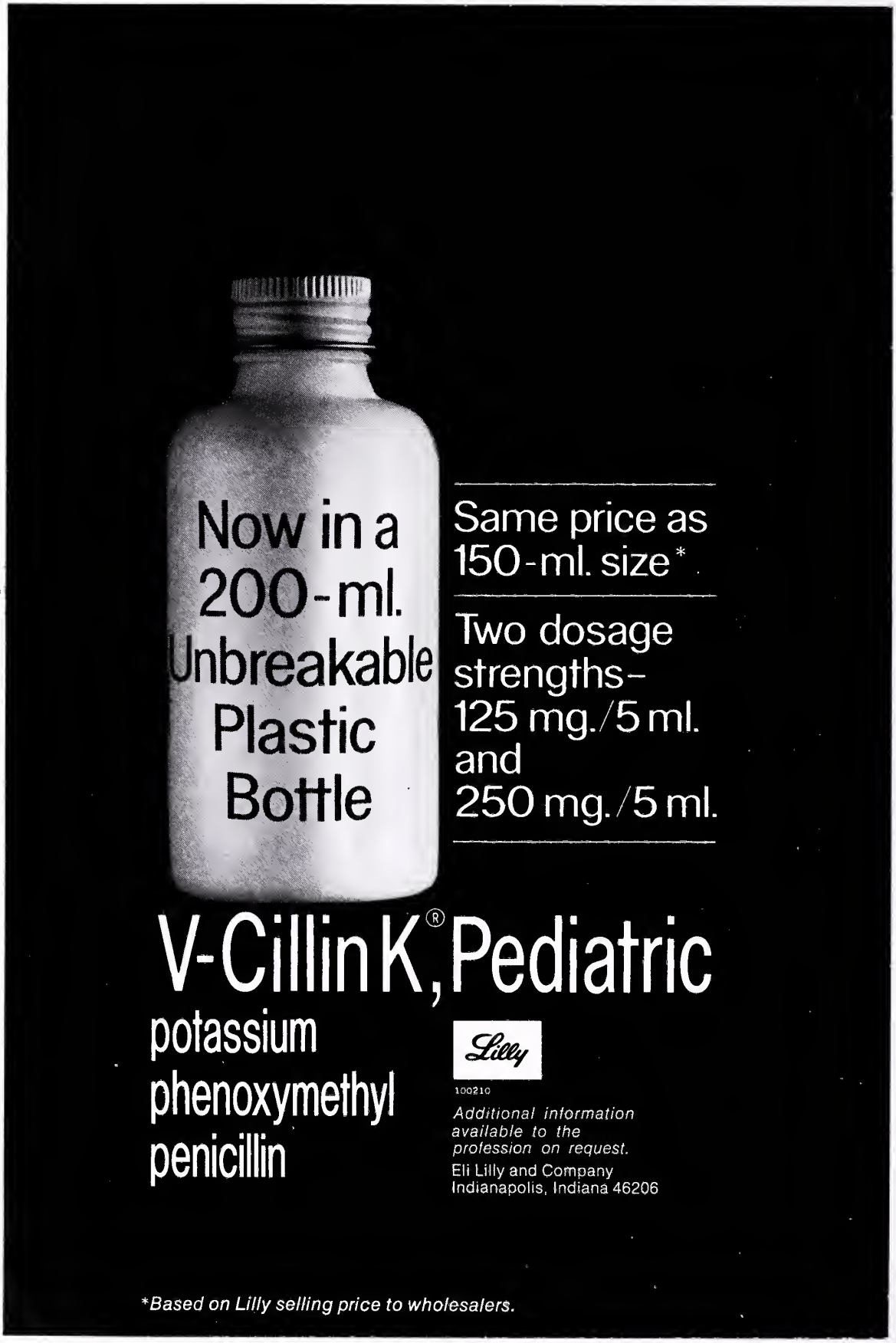
If you would like to know more about Medicenter and how it can help serve you and your hospital, we invite your inquiry.

How to give a bed to your favorite hospital.

MEDICENTER
OF AMERICA

Medicenter of America
1920 High Street
Denver, Colorado 80218

1100 Patterson Road
Grand Junction, Colorado 81501


Now in a 200-ml. Unbreakable Plastic Bottle
Same price as 150-ml. size*
Two dosage strengths– 125 mg./5 ml. and 250 mg./5 ml.
V-Cillin K,® Pediatric
potassium phenoxymethyl penicillin
Lilly
100210
Additional information available to the profession on request.
Eli Lilly and Company
Indianapolis, Indiana 46206
*Based on Lilly selling price to wholesalers.

Current Approaches to Continuing Education

ANYONE WHO HAS BEEN active in medical educational and licensure circles will attest that as recently as five years ago any mention of re-licensure or re-certification was greeted by uncomfortable silence. Although many authorities knew that they must eventually face the issue, they were reluctant to do so. The idea of re-examination was repugnant to them and they had not thought of another approach. In other words, they hoped that the unpleasant problem would just go away.

Today attitudes have changed. Not only do authorities discuss the advisability of establishing compulsory requirements for continuing education, they are taking action. The present movement began with the Oregon Medical Association. In 1970, after exhaustive study, the House of Delegates decreed that the members must fulfill certain educational requirements to remain in good standing. The medical societies of Pennsylvania and Arizona soon followed suit.

Although several additional state medical societies are seriously considering adding educational requirements for continued membership, practically all have shunned the legislative approach. Notable exceptions have been Kansas, California, and New Mexico.

The Kansas legislature passed a law which would have linked continuing education with re-licensure. But there was a provision which stated that the law would not go into effect until the Board of Medical Examiners unanimously recommended it. To date it has not chosen to do so.

In California the legislature approved such a requirement but, at the behest of the California Medical Association, granted a reprieve of three years to enable it to organize suitable programs. This has caused a great increase in the activities of the Committee on Continuing Education and already it has established standards higher than those of the Physicians Recognition Award. Furthermore, over 6,000 members are now participating voluntarily.

New Mexico is the only state in which a legal requirement connected to continuing education for re-registration of licenses is being actively pursued. The new law, sponsored by the New Mexico Medical Society, has not been enthusiastically received in all parts of the state. Despite endorsement of the Society, it was actively opposed by a small but vocal number of the members. They attacked it mainly because the idea of compulsion was anathema to them and they feared the emergence of the Board of Medical Examiners as a powerful bureaucracy and even as a dictatorship. They ignored the fact that not one of them had objected to the requirement that they show proof of possession of minimal knowledge before they could obtain their original licenses. Therefore one has difficulty in understanding their objections to proving their continuing competence to practice.

The final form of the law resulted from several legislative compromises. Nevertheless it does give the Board of Medical Examiners the necessary authority to act. The law is permissive in that it states that the Board of Medical Examiners *may* establish requirements for continuing medical education. But

even after the bill had become law a delegation from a county medical society attempted to prevent the Board from implementing it. This was rejected by the House of Delegates after a lively reference committee hearing in which there was some name calling. For example, the board secretary was called a "medical bureaucrat" and there were strong insinuations that he had communist leanings. Both the committee and the House of Delegates voted in favor of immediate implementation of the law. But the reference committee was unable to clarify the status of the secretary. In his report, the chairman stated that the members were deadlocked two and a half to two and a half on the question as to whether the secretary was a bureaucrat. He added, however, that one of them might have been a schizophrenic.

Meanwhile the members of the Board of Medical Examiners have formulated the educational requirements. In developing the program they drew heavily upon the Physicians Recognition Award. But the New Mexico demands are lower in that the Board will require only 120 hours of continuing education every three years instead of the 150 hours of the AMA. Only 40 hours must be in the required category compared to 60 hours in the AMA program.

Another law was passed by the same New Mexico Legislature which establishes strict controls over the promulgation of new rules and regulations by any state board. These include the holdings of pre-advertised public hearings at which objections may be voiced. Moreover, if the objectors think they have not been properly heard they can appeal directly to the Appellate Court. This should provide an adequate safeguard against the threat of a medical bureaucracy.

Robert C. Derbyshire, M.D.
Santa Fe, New Mexico

Physician Distribution in New Mexico

THIS ISSUE CONTAINS an analysis of the distribution of physicians in New Mexico, a discouraging study showing that 80 per cent of the State's area has 20 per cent of its people and none of its doctors. The smallest physician density consistent with good patient care is considered (by "default," say the authors) to be the national average, 149 doctors per 100,000 population. Furthermore, they say, that "since the physician is *lamentably* (italics ours) the sole source of diagnosis and treatment, we must accept the traditional view that the physician density of New Mexico is equivalent to the unit of health care in a given area." As a solution to the inadequacy of rural health care, the authors recommend the utilization of subinterns, paramedics and other personnel with private practitioners acting as preceptors or as experts to handle difficult cases—all under the aegis of an interdisciplinary department of a medical school.

The authors have assumed that, by "default," the best health care obtains in areas or countries with a high physician density. This is debatable. Sweden, often cited as a paragon because of its low infant mortality rate, has a physician-population ratio of 104 per 100,000. The subject is too complex to discuss adequately, but other factors may be more important than physician density. Perhaps Sweden has a homogenous population. Perhaps it has no remote areas. Perhaps more of its physicians take care of sick people; perhaps fewer are in administration, research or teaching. On the other hand, Sweden has the highest suicide rate in the world. Nothing is ever clear, despite statistics.

Obviously, one cannot say that the well-being of infants is dependent on having a physician density of 149 per 100,000 rather than 104 per 100,000. Today, such assumptions are being challenged, as are the "benefits" of "mass medicine." Some authorities

are beginning to doubt that the best medical services are obtained in superclinics and large group practices.

It is important to realize that the present study, undertaken and completed by third year medical students at the University of New Mexico School of Medicine, expresses their dissatisfaction with today's health delivery system, a sentiment reputedly shared by medical students elsewhere, and by other citizens. We think that self-satisfaction is not a constructive characteristic. Complacency is not compatible with progress. Nevertheless, these students may not be aware of past efforts.

Many doctors of my generation, either on their own initiative or that of a church mission, have practiced in remote communities, or traveled to them on a regular basis for the purpose of treating patients. In recent years, limited finances have forced the churches to curtail such activities. The federal government has entered the field, but not too successfully because of its budget-consciousness, restrictions, inevitable bureaucracy, and lack of interest in individuals.

State health departments have helped by establishing clinics in rural areas staffed by department or private physicians. Private hospitals have stimulated the growth of clinics, staffed by volunteer physicians. Specially trained doctor assistants have been used, on an experimental basis. No great success has been achieved by this method, so far.

Today it is being said that health is every man's right. If this is so, no one will accept less than first class medical care. Shouts are heard from minorities—people in rural areas are in a minority group—for doctors to move into their towns. Voices crying for help! They are not asking for large organizations—they distrust them. They don't want experts to fly in once a month. They don't want their heart sounds bounced off Telstar. They want physicians and nurses and other trained people to work with them on a one-for-one basis, and they want the doctor to be the decision-maker as to diagnosis and treatment, just as he does for their urban neighbors. They want to be treated as human beings, not as punch cards. They want a neighborhood family doctor.

Will the new breed of medical students hear the call after they have completed their training and experienced the realities of medical practice? If they do, then a new page may be written in the annals of rural health care.

Marcus J. Smith, M.D.*

*Editor, New Mexico Section of the R.M.M.J.

What is a Medical Management Consultant?

He is o businessmon who specializes in the business side of medicol proctices. He has no products to sell, so he can bring an outside, unbiosed-expert, third-porty point of view to help you interpret your proctice results ond produce improvements & progress.

A medicol manogement consultant helps you realize your practice gools and personal finonciol ospirotions more quickly becouse his specialized experience eliminates your trial & error.

Medicol monogement consultonts sell no insurance, no investments, no forms, no systems. They work only on o fee-for-service bosis for physicions. Their only income is from the professions which they serve.

Our firm is nationwide, but our home is in the Rocky Mountains — in Denver. There is a PMS consultant in your area. Just give him a call:

Albuquerque, N.M.	Herb Hughes	(505) 298-5809
Albuquerque, N.M.	Joe Listek	(505) 298-5809
Billings, Montana	Horry Miller	(406) 248-6203
Boulder, Colorado	George Hunt	(303) 444-3149
Colo. Spgs., Colo.	Geo. Schrameyer	(303) 598-2042
Denver, Colorado	Dick McMullen	(303) 986-2394
Denver, Colorado	Jim Meador	(303) 623-7165
Denver, Colorodo	Ed Rarden	(303) 623-7165
Ogden, Utah	Doyle Allen	(801) 394-5828
Santa Fe, N. M.	Don Hughes	(505) 983-1314

Or clip the coupon below and drop it in the moil to our Central Office in Denver.

Have your President drop in to see me.

Name _____ Telephone _____

Address _____ City _____ State _____ Zip _____

PRACTICE MANAGEMENT SERVICES

601 BROADWAY DENVER, COLORADO 80203

Upper gastrointestinal bleeding among Navajo Indians*

Albert L. Muggia, MD,† Albuquerque, New Mexico

UPPER GASTROINTESTINAL bleeding is a problem of sizable proportion among the Navajo Indians. These patients have to be managed in a different manner than that usually employed because their distribution of pathology is unusual. All of the patients admitted with upper gastrointestinal bleeding to the Gallup Indian Medical Center (GIMC) during a one year period have been reviewed in an effort to define etiologic factors and ideal management since the usual diagnostic procedures and therapeutic measures do not apply with this group of patients.

From June 1968 to June 1969, 50 patients were admitted to the GIMC vomiting bright red blood, or having bright red blood removed from the stomach by gastric aspiration. All of these patients had a definite fall in hematocrit, and in 60 per cent the hemorrhage was of such severity that blood transfusion was required. The ages ranged from 15 to 50, but most of the patients were in their 20's and 30's. There were 17 women and 33 men in this group.

Method

All the patients were treated in the same manner. Immediately upon admission a nasogastric tube was introduced to study the gastric contents. BSP dye was injected, and endoscopy was carried out when the BSP results became available. Esophagoscopy and gastroscopy were performed if the BSP excretion was delayed, or gastroscopy alone if the BSP excretion was normal. Gastric irrigation with ice water was continued for as long as bleeding was noted. Intermittent nasogastric suction was used only when the returns from the stomach became clear. When esophagoscopy revealed bleeding varices, surgical pituitrin was used and a Blakemore tube was introduced only if the bleeding did not stop. Upper gastrointestinal series were obtained once the patient's condition was stable, or on an emergency basis if endoscopy did not reveal the source of the bleeding. In all the patients with an elevated BSP, a large bore tube was introduced in an effort to remove as much of the blood from the gastrointestinal tract as possible. We feel that this "vigorous" approach to diagnosis[1] is responsible for the very low number of cases without a definite diagnosis. No endoscopic accidents or perforations resulted during this year.

Treatment was medical except in 10 patients who went to surgery, four of them for a portacaval shunt. The indication for surgery was always persistent bleeding after appropriate non-operative therapy.

Results

Of these patients, 27 (54%) were found to be bleeding from the esophagus. Esophageal varices were seen by esophagoscopy in 19 patients, one patient had an esophageal ulcer and seven had esophagitis or esophageal tears or a combination of the two.

Gastric bleeding was encountered in 22 patients (44%), and surprisingly, bleeding from below the stomach was found in only one patient who had a duodenal ulcer which hemorrhaged. Of the patients that bled from the stomach, 10 patients bled from gastric ulcers, two of which were associated with stress. One of the stress ulcers followed a myocardial infarction, and the other occurred during a complicated post-operative course

*This study is from United States Public Health Service, Gallup Indian Medical Center, Gallup, New Mexico and the Department of Medicine, University of New Mexico, School of Medicine, Albuquerque, New Mexico.
†Dr. Muggia is Asst. Prof. of Medicine, University of New Mexico School of Medicine.

TABLE 1

Summary of all Patients with Upper Gastrointestinal Bleeding Admitted to GIMC in 1969. Total: 50 Patients.

Diagnosis	Percent
Esophageal Varices	38%
Esophageal Ulcer	2%
Esophagitis or Mallory-Weiss Syndrome	14%
Total Esophagus	54%
Stress Gastric Ulcer	4%
Hemorrhagic Gastritis (confirmed gastroscopically)	16%
Hemorrhagic Gastritis (clinical diagnosis only)	8%
Gastric Ulcer	16%
Total Stomach	44%
Duodenal Ulcer	2%
Total Duodenum	2%

following a cholecystectomy with sepsis. A definite hemorrhagic gastritis proven by gastroscopy or at surgery was found in eight patients. Four patients were not gastroscoped and they had no definite diagnosis demonstrated, although clinically the diagnosis of hemorrhagic gastritis was made on the basis of a negative upper gastrointestinal series and mild bleeding that stopped promptly after alcohol intake was stopped and therapy was started (Table 1).

In Palmer's series,[1] 31.5 per cent of his patients bled from the esophagus as compared to 54 per cent in our series. The same vigorous diagnostic approach was used by E. D. Palmer. Twenty-five per cent of his patients bled from the stomach compared to 44 per cent in this series. Twenty-seven and seven tenths per cent of Palmer's patients bled from the duodenum compared to two per cent in the Navajo Indians.

The different pattern of bleeding is to a large extent explained by the high incidence of heavy alcoholism. Only seven of the patients in this series gave no history of alcoholism.

Discussion

It is of interest that in the year prior to this study when endoscopy was not available at the GIMC, 60 per cent of upper gastrointestinal bleeding was considered to be due to hemorrhagic gastritis because the patients had a negative radiologic workup and no symptoms of peptic ulcer disease. The clinical diagnosis made without endoscopy is often incorrect, and with the use of the gastroscope we could conclude that among the Navajo Indians alcoholic hemorrhagic gastritis is not a very common entity and accounts for only twenty per cent of upper gastrointestinal bleeders.

These figures are similar to those of gastrointestinal bleeding in cirrhotics. Even though there was a history of alcoholism in most of our patients, the diagnosis of cirrhosis could be made on very few. Merigan and associates[2] studying 158 cirrhotics with gastrointestinal bleeding reported 53 per cent esophageal bleeders, 23 per cent bleeding from gastritis, 5 per cent from gastric ulcer, 13 per cent duodenal ulcers and six unknown. The Navajo Indians have fewer duodenal ulcers and more gastric ulcers, otherwise the percentages are remarkably similar.

All of the 50 patients admitted with bleeding had an upper gastrointestinal series before discharge, and in only 12 cases was a definite diagnosis possible by radiologic means. With gastroscopy, however, a definite diagnosis was made in 14 of 30 patients gastroscoped. Eight had gastritis and six had a gastric ulcer. Thirty-eight patients were esophagoscoped and a definite diagnosis was made in 22. The diagnosis was made in the operating room in three patients and at autopsy in four patients. The high yield of useful information from endoscopy was impressive, and is probably related to the high incidence of gastric and esophageal lesions.

In almost 60 per cent of these patients endoscopy correctly defined the site of bleeding.

Without endoscopy many of the cases would have been discharged as "gastritis" or "bleeding of undertermined origin." Bleeding from esophageal varices can present a variety of clinical pictures. Several of our patients had esophageal varices that oozed small amounts of blood for a long period of time, enough to drop the hematocrit, but never enough to produce hematemesis or melena. Varices have to be considered in the differential diagnosis of anemia and guaiac positive stools. We also had the opportunity of following two patients with large esophageal varices, who stopped drinking completely, and follow-up endoscopy showed the gradual and complete disappearance of these varices during a nine month interval.

The relationship of alcohol and liver disease held up in all our patients with esophageal varices, and interestingly enough also in all the patients with esophageal tears. A BSP retention of over 15 per cent was found in all the patients in these two groups. Vomiting sufficient to cause esophageal tears was always related to alcohol intake.

In this regard, it should be mentioned that only on a rare occasion are spider angiomas or palmar erythema seen in Navajos. Thus, a clinical diagnosis of cirrhosis may be difficult and the excretion of BSP is the single most reliable and most helpful initial test in patients bleeding from the gastrointestinal tract. An aggressive approach to diagnosis was important because of the increasingly poor prognosis with time in these patients with advanced liver disease and a high incidence of esophageal varices.

The surprising fact is that duodenal ulcers are almost unheard of among the Navajo Indians, and this diagnosis need seldom be considered. Duodenal ulcers are rare also in Navajos with cirrhosis since only one duodenal ulcer was seen in a two year period. We conclude that initial treatment with milk and antacids is not warranted, and emergency radiologic studies will seldom be helpful when compared to the yield from endoscopy. On the other hand, an important feature in the treatment of these patients with such a high incidence of liver disease is to prevent hepatic coma by keeping blood products from entering the small bowel. A large nasogastric tube that is kept functioning well at all times can be life-saving. Irrigation with iced saline is also helpful in decreasing the amount of bleeding.

Because of the importance of keeping bleeding to a minimum, the Blakemore tube was used early and often, and most of our medical and nursing personnel became very familiar with its use. Our results in controlling bleeding with this tube were good. We applied one pound of traction and inflated only the gastric balloon whenever possible. No serious complications directly attributable to the Blakemore tube were encountered, even though one patient exsanguinated from esophageal varices in spite of having the tube properly in place, and a pneumonitis resulted in one-fourth of the patients. In all cases we tried to remove the tube after 48 hours though it was often necessary to reinsert it.

During the year 1969 there were 13 deaths for a mortality of 26 per cent. Mortality was not related to age but to the presence or absence of liver disease. Four patients died of hemorrhage and nine of hepatic coma. Three of these deaths followed portacaval shunts. Only one of the deaths was in a patient without cirrhosis. This was a young man with massive hematemesis who died shortly after admission. At autopsy he was found to have an acute superficial gastritis and no esophageal varices.

Summary

1. The pattern of upper gastrointestinal bleeding among the Navajo Indians appears to be sufficiently different from that of other groups to warrant an altered plan of therapy. Duodenal ulcers are not seen, and there is a high incidence of liver disease and alcoholism, with a remarkably high incidence of esophageal varices. Of 50 upper gastrointestinal bleeders, 27 bled from the esophagus, 22 from the stomach and only one from the duodenum.

2. Absences of spiders and palmar erythema make a clinical diagnosis of cirrhosis difficult in the Navajo Indians. This pattern of bleeding makes prompt endoscopy the first step in all upper gastrointestinal bleeders as soon as the BSP excretion rate is determined. Without endoscopy the wrong clinical diagnosis will often be made, and many patients will have to be discharged as gastrointestinal bleeders of unknown etiology. Diagnostic yield from endoscopy was much higher than from radiologic studies.

3. There is no characteristic clinical picture for esophageal varices with hemorrhage —they can bleed massively or they can continue oozing small amounts of blood for a long period of time. Therefore, therapeutic trials with the Blakemore tube are warranted if endoscopy is not available. Varices can disappear if the patient stops drinking and if the liver disease is not too far advanced. Portacaval shunts are not indicated in all patients who have bled from esophageal varices. A liver biopsy is essential before considering a patient for a shunting procedure.

4. Keeping blood products from entering the small bowel is of paramount importance in preventing hepatic coma and in decreasing mortality, since most of the deaths were due to liver disease. •

REFERENCES

[1] Palmer, E. D.: The vigorous diagnostic approach to upper gastrointestinal tract hemorrhage. J.A.M.A. 207:1477-1480, 1969.

[2] Merigan, T. C., Brollister, R. M., Grysha, P. F., Starkey, G. W. B., and Davison, C. S.: Gastrointestinal bleeding with cirrhosis. New. Eng. J. Med., 263:579-586, 1960.

For Insomnia... one capsule for the rest of the night

NOLUDAR® 300

(methyprylon)

Before prescribing, please consult complete product information, a summary of which follows:

INDICATION: Relief of insomnia of varied etiology.

CONTRAINDICATIONS: Patients with known hypersensitivity to the drug.

WARNINGS: Caution patients about combined effects with alcohol and other CNS depressants. Caution against hazardous occupations requiring complete mental alertness, such as operating machinery or driving a motor vehicle shortly after ingesting the drug.

Physical and Psychological Dependence: Physical and psychological dependence rarely reported. If withdrawal symptoms do occur they may resemble those associated with withdrawal of barbiturates and should be treated in the same fashion. Use caution in administering to individuals known to be addiction-prone or those whose history suggests they may increase the dosage on their own initiative. Repeat prescriptions should be under adequate medical supervision.

Usage in Pregnancy: Weigh potential benefits in pregnancy, during lactation, or in women of childbearing age against possible hazards to mother and child.

PRECAUTIONS: If sleeplessness is pain-related, an analgesic should also be prescribed. Perform periodic blood counts if used repeatedly or over prolonged periods. Total daily intake should not exceed 400 mg, as greater amounts do not significantly increase hypnotic benefits.

ADVERSE REACTIONS: At recommended dosages, there have been rare occurrences of morning drowsiness, dizziness, mild to moderate gastric upset (including diarrhea, esophagitis, nausea and vomiting), headache, paradoxical excitation and skin rash. There have been a very few isolated reports of neutropenia and thrombocytopenia; however, the evidence does not establish that these reactions are related to the drug.

Each capsule contains 300 mg of methyprylon.

ROCHE

ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

The abused child

Nancy M. Riley,* Urbana, Illinois

What can the physician do when faced with a suspected case of child abuse? What are his responsibilities under the Model Mandatory Reporting Act, the basis for most state reporting legislation?

UNTIL 1962 THERE WERE few reports by doctors to authorities regarding children they believed to be abused. In a study made in 1960 of 180 children from 115 families referred to the Massachusetts Society for the Prevention of Cruelty to Children in one year for child abuse, only nine per cent were referred by hospitals or physicians, although they had been involved with over thirty per cent of the children. Case histories from many hospitals substantiate this failure to report suspected child abuse. There were scores of physicians coming into contact with abused children who took no action to prevent recurrences.

Today, however, the child battery syndrome has received a good deal of publicity. Popular publications as well as medical, legal and social science journals have printed many articles concerning child battery. Most states have enacted compulsory reporting laws. As a result, today most lay citizens and physicians are aware of the incidents and problems.

Helpful as this increasing awareness is, several difficulties still face the physician dealing with suspected child abuse. The first, of course, is diagnosis. Here the work of Kempe and others has helped to clarify the medical symptoms of abuse. Unfortunately an accurate diagnosis is only the first step towards understanding and resolving the problem, and little progress has been made in other areas. As yet, for example, no clear psychological picture of the abusive parent exists. Abuse appears among all educational, social and financial levels, although some incomplete data indicates that it might occur less within minority groups than within the population as a whole.

Two clear facts have emerged from studies of the last few years, however. One is that a child who has once been abused by his parents is likely to be abused again. Up to now, counseling carried on in social agencies has been far from successful. Usually the only sure way to remedy the situation is to remove the child from his parents. The second is the belief by psychiatrists that there is a direct connection between child abuse and later anti-social behavior. The original abused victim, innocent though he may be, repays that injustice again and again by striking out, often violently and cruelly, at those around him.

Knowing the likely consequences of child abuse, can the physician afford to simply diagnose and treat the physical symptoms?

Responsibility of the Physician

What can the physician do when faced with a parent whom he suspects has abused or battered his child? Usually there is complete denial of any knowledge of battery. The parents are able to maintain an attitude of complete innocence despite their understanding that the injury could not have occurred any other way. Sometimes this denial is conscious, for they are afraid and ashamed. At other times it is based upon psychological repression and genuine amnesia in which the attacker actually cannot remember his actions.

*Nancy Riley is presently a student at the University of Illinois School of Law. She was a student at the University of New Mexico School of Law when she studied this problem.

How, then, can the physician gain information from reluctant parents? It is sometimes helpful for him to tell the parents in his opinion this kind of injury should not have occurred if the child were adequately protected. He can indicate he would be happy to have them tell the story so he can help them prevent the same situation from occurring again. Sometimes the parents then feel they can help the child by giving the complete story, and can so alleviate their guilt feelings. Often, however, this is not successful, and the physician can only continue talking, indicating that he understands their problem and wishes to help them as well as the child. He can help them reveal the situation as it occurred by pointing out reasons they can use to explain their actions. He can, for example, suggest that new parents sometimes lose their tempers and are a little too forceful in their actions toward their baby. The guilty parents might then grasp at this idea as an excuse. The questioning should never be angry or hostile, regardless of the physician's emotions. It should be done in a sympathetic and quiet way, with the physician indicating his assurance that the battery was diagnosed on the basis of objective findings, and that all the parties involved, including the parents, have an obligation to see that this behavior is avoided in the future.

If this technic does not work, other routes of questioning sometimes prove fruitful. One parent may be asked about the other in relation to unusual or bizarre behavior, or for a description of the other spouse's general dealings with the child. Both parents might be asked about worries and tensions at home, and their sources. Their answers might show clues to their patterns of behavior. Other questions concerning the behavior of the baby can bring revealing answers, questions such as "Does he eat well? Does he cry a great deal? Is he stubborn? Do you have problems controlling him?"

Questions concerning the parents' ideas of how they themselves were brought up may be revealing since we tend to act toward our children in the same manner our own parents acted toward us, repeating the learned patterns. If interviews with grandparents or other relatives can be arranged, additional data can be elicited. Observations by nurses and other hospital personnel of the parents' behavior in relation to the child may prove helpful. For instance, the behavior of the attacking parent toward the injured child may be inappropriate, showing a lack of concern or bizarre behavior.

But however successful or unsuccessful the physician may be in his dealings with the parents involved, he still faces the problem of reporting the suspected case of abuse. Physicians are often reluctant to report their findings. This is understandable. They are trained as healers, not as policemen or prosecutors. Even given the legal requirements for such reporting and safeguards against law suits, the average physician is no more eager to put himself in the role of informer than any other citizen. But the function of the physician, in child abuse or any other injury, is not only to correctly diagnose and treat the injury, but to endeavor to insure that the injury is not repeated. The best way, and in many cases the only way, that the repetition of such injury can be avoided is for the physician promptly to report his objective findings to the proper authorities—in New Mexico the local District Attorney's office. He should also be acquainted with the local facilities providing protection for children. These agencies include humane societies, local chapters of the American Society for the Prevention of Cruelty to Children and the Juvenile Division of the Department of Welfare. These agencies can bring a case before the courts, which have the legal power to sustain a dependency petition for temporary separation of the child from the parents' custody. Failure of the physician to assume this responsibility can lead to future abuse and possible death of a child.

Statutory Reporting Laws

Ultimately solutions to the problems of child abuse must come from a combination of medicine, social work and the law. The legal profession, starting in 1962, has taken some significant steps. In that year the Children's Bureau of the United States Department of Health, Education and Welfare, concerned by

the increased number of child batteries, prepared a Model Act for the States for the Mandatory Reporting by Physicians and Institutions of Certain Physical Abuse of Children. This Model Act in essence is a statement of principles and suggested language for state legislation on the reporting of child battery incidents.

Since the physician is often the most qualified person to determine how an injury occurred, the Model Act suggests mandatory reporting of child abuse by physicians, nurses and institutions treating abused children. It provides that these medical personnel shall make reports to the proper child welfare or law enforcement authorities when they have "reasonable cause to suspect" that the child was injured "other than by accidental means." The physician does not have to believe or even have cause to believe the child has been abused. He should report the suspected abuse if a reasonable doctor would think the child might have been abused.

Exactly what must the physician have "reasonable cause to suspect?" He must suspect the child has had "serious physical injuries inflicted upon him by other than accidental means." If the injury was not accidental, in the eyes of the law it was the result of a voluntary act done for the purpose of causing injury. It is not necessary that the abuser intended to seriously injure or cause the death of the child. It is enough that he intended to cause pain to an unreasonable degree or by unreasonable means. Parental discipline, even by means of physical punishment, is recognized by the law. If the baby cries, it is legal to spank him, but how hard? The doctor is not required to determine this. He need only use common sense derived from professional experience to decide whether the child has been injured by intentional and unreasonable behavior of the adult. The doctor should remember it is the child who is his patient, not the parent, and it is to the child he owes his first obligation.

It should be pointed out the physician is required only to report the facts to the legal agency if he is a private practitioner, or to the hospital administrator if he is a member of a hospital staff. He is required to do no more. This should relieve the doctor trained and accustomed to helping people from feeling he is being forced unnaturally into the position of investigator or prosecutor. Those functions are left to the state officials. It is also left for them to decide whether court action is needed or what other agencies should be brought into the case.

The Model Act provides that the physician-patient privilege "shall not be a ground for excluding evidence regarding a child's injuries or the cause thereof," in a judicial action stemming from the report. Only a few states recognize this privilege (New Mexico does not) and even in the states which do, it would probably be inapplicable in a criminal prosecution of an adult who abused a child. In those states where this privilege is recognized, its purpose is to safeguard the confidential relationship between the doctor and his patient, and is meant for the benefit of the patient. If the privilege applies unless waived, the child does not have the legal capacity to waive it, and the parent as legal guardian would probably not waive it because doing so would be against his interests. Generally, however, in most states which have this privilege it is a rule of evidence and cannot be invoked by anyone other than the patient himself. In a criminal prosecution, the child would not be a party to the suit, so probably no issue of privilege would arise. The Model Act, however, makes certain there will be no legal block to the physician's testimony by specifically disallowing the privilege in all instances.

The Act also insures that the physician or hospital administrator making the report will be protected from personal liability stemming from either criminal or civil suits. It provides that "anyone participating in making a report pursuant to this Act or participating in a judicial proceeding resulting therefrom shall in so doing be immune from any liability, civil or criminal, that might otherwise be incurred or imposed." Probably the only liability which could be imposed would be for defamation of character, or for malicious prosecution. In either situation the parent would have to prove malicious intent of the physician or administrator which would be difficult. Nevertheless, to insure full protection the Model Act includes this provision.

A law suit, even if unsuccessful, is expensive, and can be damaging to the professional reputation of the physician or institution regardless of the outcome.

Lastly, the Model Act provides that failure on the part of medical personnel to report a suspected abuse results in a misdemeanor. The purpose of this measure is to bring home to medical personnel the seriousness of the problem of child abuse, and their responsibility in helping to insure that these children are protected.

The importance of the Model Act, then, is that medical personnel reporting alleged child abuse in good faith are safe from civil suits. It grants them immunity in order to encourage their reporting of suspected abuse more freely, which in turn gives legal and welfare agencies an opportunity to take action to protect abused children.

In 1962 no state had enacted a mandatory reporting of child abuse statute. Now nearly all jurisdictions have done so, most of them using the Model Act as a basis for their legislation. Even in those states where legislation is based on the Model Act, however, important differences can exist.

The Model Act, for example, requires only the reporting of "serious physical injury or injuries inflicted upon [the child] other than by accidental means." It would appear that in New Mexico acts of omission as well as acts of commission must be reported, for there the statute says those acts which must be reported are "serious injury or injuries inflicted upon him or her as a result of abuse, neglect or starvation."

In the Model Act all medical personnel are required to report, the theory presumably being that since physicians, nurses or institutions are the most qualified to form a reasonable belief as to how the injury occurred, only they should be required to report. The New Mexico law, however, requires only staff members of hospitals or institutions to report; individuals in private practice are not so required. The reason for this is not clear. Perhaps the state is more reluctant to attempt to control the actions of professional people than the actions of staff directly employed by public or quasi-public health facilities. Wyoming, in contrast, goes further than the Model Act in defining who is required to report; their law requires any person having cause to believe the child has been abused to report it. Each physician should familiarize himself with his local legislation.

However helpful the advances of the last twenty years, the problem is far from solved. We need better diagnostic technics for identifying potential abuse and better therapeutic technics for preventing it. We need to develop a system that offers the victim not only physical but emotional healing, a system of long-term counseling and therapy that will break the vicious circle of abuse producing abuse. •

REFERENCES

1. Boardman, "A Project to Rescue Children From Inflicted Injuries," 1 Social Work 7 (Jan., 1962).
2. Children's Bureau, U. S. Dept. of Health, Educ. and Welfare, The Abused Child—Principles and Suggested Language for Legislation and Reporting of the Physically Abused Child (1963).
3. Harper, "The Physician, the Battered Child and the Law," 31 Pediatrics 899 (1963).
4. Kempe, Silverman, Steele, Droegemueller and Silver, "The Battered Child Syndrome," 181 J.A.M.A. 105 (1962).

Medical problems among rural hippies

J. David Curb and Joel Trujillo*, Albuquerque, New Mexico

A report on the unique medical situation and problems seen in a Free Clinic serving rural hippies in northern New Mexico.

TAOS, NEW MEXICO, is an ancient and beautiful artists' haven of 3,500 people, nestled in the foothills of the Rocky Mountains. In recent years this small rural community has become the center of what is probably the largest concentration of rural hippie communes in America. The health and social problems created by the influx of this new group of medically indigent prompted local physicians to establish a centrally located free clinic.

The communes of Taos represent a wide range of life styles. There is no one typical commune, although all are somewhat similar in their primitive nature. The political and social matrix around which they form is extremely variable in almost every regard, including such factors as sexual habits, living arrangements, religious or spiritual activities and drug use.

Most established communes have no indoor plumbing or electricity. Most do have pit toilets and adequate wells, and most have erected or are in the process of erecting permanent housing. Many of the communes are very conscious of the infectious process and disease transmission, while others totally disregard these factors. This disregard comes about because of the belief that having your "head in the right place" or eating the right foods will protect you from most disease. A widespread belief is that immunity to most disease will be established if you live with it long enough.

*Mr. Curb and Mr. Trujillo are senior students at the University of New Mexico School of Medicine, Albuquerque, New Mexico 87106.

Drug use, while existent, seems to be minimal compared to other hippie concentrations. There is certainly nothing to compare with Haight Ashbury at its height, where it was reported that LSD and amphetamines were commonly used.[1] Several communes will not allow drugs on their grounds.

Nearly 10,000 patient visits have been made to the Taos Free Clinic, or La Clinica as it was later renamed, since its inception in February, 1969. The present facility consists of a waiting room, two examining rooms, a laboratory area and a drug storage room. The clinic is open from 2-4 hours a day, five days a week. It is staffed by local physicians, volunteers and fourth year medical students involved in preceptorships with local physicians. Financial support is spotty and at the present time the clinic is supported primarily by donations. The atmosphere of La Clinica is informal with minimal personal confrontation and questioning. Acute medical problems are diagnosed and treated with emphasis on instruction to the patient about care and management within the framework of the patient's individual situation and life style.

In the 10-week period from June 15 to August 22, 1970, over 600 patient visits were made to La Clinica. This was a patient load of approximately 12 per day, although the range was from 5 to 25. The majority of these patients were seen only once at the clinic due to the acute and traumatic or infectious nature of their problems. During this 10-week period a wide spectrum of disease was seen (Table 1). Infections, trauma and obstetric and gynecologic problems were common. Gonorrhea, non-specific diarrheal disease and respiratory infections were the main infectious problems encountered. Three notably absent, or nearly absent, problems were hepatitis, syphilis, and drug-related illness.

Review of our records revealed that the patient population was drawn from a relatively wide geographic area. The majority came from Taos and the immediate area, but there were many patients living from 15-60 miles away who traveled to the clinic. Only a relatively small number of transients identified themselves as such. The average patient's age was slightly over 20. There were almost equal numbers of males and females in our sample.

There has been relatively little written specifically about the health of hippies. Dr. David Smith has published some of his findings from the Haight Ashbury Free Clinic.[2] The striking difference between his findings and those at our clinic was the almost nonexistence of drug problems at La Clinica. This is probably a reflection of a small quantity of drug use. Medical problems encountered were quite similar. Frequency of visits due to gastrointestinal disease, venereal disease, and ob-gyn problems seems to have been proportionately greater in Taos. Incidence of hepatitis, respiratory tract infections and trauma was proportionately greater in the Haight Ashbury study. The mean age of patients was somewhat higher in Taos. A recently published article by Drs. Palmer, Kisch and Reed of the University of New Mexico School of Medicine deals with a health profile of one New Mexico commune.[3] The study was prompted by a case of bubonic plague in the commune. They also found little current drug usage. They found the group to be generally in good health although one other case of plague was found.

The free clinic in Taos seems unique in that it is one of the few serving rural hippies almost exclusively. It is faced not only with the problems of operating a free clinic but also with those inherent in rural medicine. Despite the problems which it faced there seems to be little doubt of the part it has played in preventing what might well have become a medical emergency due to the influx of a large medically indigent population into an area already beset with many of the problems of health care delivery seen in rural areas across the country.

While few conclusions can be drawn from the information gathered, the figures do provide an interesting look at the unique medical situation of a largely young middle class group which has voluntarily become part of the rural poor. •

TABLE 1
NUMBER OF PATIENTS SEEN IN EACH DISEASE CATEGORY
(Multiple visits counted as one)

Skin	
Infectious	49
Other	23
Trauma	47
Eye, ear, mouth	43
Respiratory	
Upper Respiratory Tract Infections	26
Bronchitis and Asthma	7
Pharyngitis	
Strep (Positive culture)	11
other	23
Allergies	2
Pneumonia	2
Gastro-Intestinal	
Hepatitis	5
Diarrheal Disease	
Shigella (positive culture)	7
Salmonella and Shigella (positive culture)	1
Other	37
Gastroenteritis	12
Other	13
Obstetrical	41
Gynecological	75
Venereal Disease	
Gonorrhea	51
Syphilis	0
Other (Pediculosis and Trichomonas)	19
Urinary Tract Infection	19
Drug related	3
Miscellaneous	40

TABLE 2
NUMBER OF PATIENTS SEEN BY AGE

Age	Number of patients
<15	55
16-20	119
21-25	155
26-30	54
31-70	23

We are indebted to Dr. Robert Oseasohn for his advice and assistance in preparing this paper.

REFERENCES

[1] Wolfe, Burton H.: The Hippies, (New York, New American Library, Inc., 1968).
[2] Smith, David E., M.D., Rose, Alan J.: "Observations in the Haight-Ashbury Medical Clinic of San Francisco," Clinical Pediatrics, 7: June, 1968, 313-316.
[3] Palmer, D. L., MD, Reed, W. P., MD, Kisch, A. L., MD: "Health in a Rural Hippie Commune," J.A.M.A., 213: August 24, 1970, 1307-1310.

The girth control pill

Tepanil® Ten-tab®

(continuous release form)

(diethylpropion hydrochloride, N.F.)

When girth gets out of control, TEPANIL can provide sound support for the weight control program you recommend. TEPANIL reduces the appetite—patients enjoy food but eat less. Weight loss is significant—gradual—yet there is a relatively low incidence of CNS stimulation.

Contraindications: Concurrently with MAO inhibitors, in patients hypersensitive to this drug; in emotionally unstable patients susceptible to drug abuse.

Warning: Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

Adverse Reactions: Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence. As is characteristic of sympathomimetic agents, it may occasionally cause CNS effects such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported. Sympathomimetic cardiovascular effects reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others. Allergic phenomena reported include such conditions as rash, urticaria, ecchymosis, and erythema. Gastrointestinal effects such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosage forms: TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL: One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

T-107/4/71/U.S PATENT NO. 3,001,910

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Painful night leg cramps...

unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

One thing patients can sleep without, particularly patients with chronic disease conditions such as arthritis, diabetes or PVD, is painful night leg cramps. Although seldom the presenting complaint, night leg cramps can tie your patients up in painful knots. Now, just one tablet of QUINAMM at bedtime can usually bring an end to shattered sleep and needless suffering. Your patients will sleep restfully—gratefully—with QUINAMM, specific therapy to prevent painful night leg cramps.

Prescribing Information—Composition: Each white, beveled, compressed tablet contains: Quinine sulfate, 260 mg., Aminophylline, 195 mg. **Indications:** For the prevention and treatment of nocturnal and recumbency leg muscle cramps, including those associated with arthritis, diabetes, varicose veins, thrombophlebitis, arteriosclerosis and static foot deformities. **Contraindications:** QUINAMM is contraindicated in pregnancy because of its quinine content. **Precautions/Adverse Reactions:** Aminophylline may produce intestinal cramps in some instances, and quinine may produce symptoms of cinchonism, such as tinnitus, dizziness, and gastrointestinal disturbance. Discontinue use if ringing in the ears, deafness, skin rash, or visual disturbances occur. **Dosage:** One tablet upon retiring. Where necessary, dosage may be increased to one tablet following the evening meal and one tablet upon retiring. **Supplied:** Bottles of 100 and 500 tablets.

THE NATIONAL DRUG COMPANY
DIVISION OF RICHARDSON-MERRELL INC.
PHILADELPHIA, PENNSYLVANIA 19144

Quinamm™ Specific therapy for night leg cramps
(quinine sulfate 260 mg., ominophylline 195 mg.)

Propranolol: an adjunct to definitive treatment of thyrotoxicosis

Ralph C. Friedenberg, MD, Albuquerque, New Mexico

Propranolol was used to prevent hypermetabolic complications in six patients undergoing thyroid irradiation or thyroidectomy for hyperthyroidism. The drug was found to be useful in both controlling the symptoms of thyrotoxicosis and avoiding radiation thyroiditis and postoperative thyroid storm.

THE MANAGEMENT OF thyrotoxicosis has undergone many changes over the past few decades. Physicians now have a variety of therapeutic modalities from which to choose, both for temporary control and permanent cure of this disease. Temporary control can be accomplished with the antithyroid drugs including inorganic iodides, which inhibit hormone release,[1] and such Thionamides[2] as Propythiouracil and Methimazole, which interfere with iodine oxidation, iodine binding, and coupling of the iodotyrosine residues. While these drugs are very useful they do have certain disadvantages. The iodides, for example, act very rapidly, but response is temporary, somewhat unpredictable, and iodine cannot be used simultaneously with radioactive iodine for definitive treatment as it expands the iodine pool and diminishes the amount of radioiodine taken up by the gland.[3] In addition, rash, fever, and parotid enlargement may occur. Likewise, the Thionamides may be associated with adverse reactions including bone marrow suppression, rash, and a lupus-like syndrome.[4] Prolonged remission with these agents occurs in only half of patients,[5] so many individuals must still be eventually treated by other means. Also, Thionamides must be stopped for at least 2-3 days before I-131 administration to permit uptake.

The Perchlorates and Thiocyanates have been abandoned in the United States because of adverse reactions.[6] Adrenergic blockade, which I shall discuss in more detail later, is useful but again is temporary.

Since the aforementioned measures *are* often temporary, ablative procedures such as radioactive iodine and surgery frequently must be employed. Radioactive iodine is taken up by the thyroid gland selectively and the radiation emitted destroys the hormone producing cells. In patients who have a rather large store of intraglandular hormone, radiation may cause rapid destruction of the thyroid and release a large amount of Thyroxine and Triiodothyronine. The excess hormone may exacerbate the hypermetabolic state and result in a variety of problems including arrhythmias, "thyroid storm", and heart failure. This condition, called "radiation thyroiditis" occurs about 10-14 days following therapeutic I-131 administration and is usually prevented by the administration of anti-thyroid drugs for a few weeks prior to giving I-131.[7] Inhibition of synthesis by Propylthiouracil or Methimazole will decrease the amount of hormone in the gland and "radiation thyroiditis" can be made less hazardous. This approach is generally effective, but some individuals may not be able to tolerate Thionamide drugs for reasons discussed previously and these agents must be stopped for a period of time to permit I-131 uptake.

Likewise, surgical removal of the gland requires that the patient be specially prepared to prevent leakage of large amounts of hormone during the procedure as "thyroid

storm" may be precipitated in the poorly controlled patient.[8] Generally, Iodides and the Thionamide drugs are employed, but adverse reactions may preclude their use. It is well then to have an alternative agent to help prevent toxic complications of radiation and surgical therapy.

It has been observed that there is a relation betwen hyperthyroidism and excessive adrenergic activity.[9] Alpha adrenergic blockade with Reserpine and Guanethidine has been used for some time to block peripheral effects of thyroid hormone and most recently Propranolol,[10] a Beta Adrenergic blocker, has been employed for the same purpose. Although useful, Reserpine and Guanethidine have disadvantages including hypotension, especially with surgery, while Propranolol has generally been safe in *selected* patients. Indeed this agent has been useful in preventing or ameliorating tachycardia, arrhythmias, tremor, myopathy and certain subjective complaints. It does not alter synthesis of the thyroid hormone, nor affect glandular metabolism directly but appears to inhibit the action of Thyroxine on various cellular functions.[11] It would seem, therefore, that Propranolol might be effective in protecting thyrotoxic patients from potential hypermetabolic complications associated with either radiation or surgery. I should like to report our experience with this drug in three patients undergoing radioactive iodine treatment and three undergoing surgery. This subject has been alluded to previously, but a detailed discussion has not appeared in the literature.[12]

CASE REPORTS

Case 1. A 42-year-old female had symptoms of mild hyperthyroidism with borderline laboratory tests for over two years. Weight loss progressed over this period and by 1970 weight had fallen to 109 pounds from 130 pounds, pulse elevated to 110 from 80. I-131 uptake was 62% and PBI was 10 mcg%. In July of 1970 she was placed on Propranolol 80 mg per day which resulted in control of nervousness and sweating, and her pulse rate fell to 80. Her weight dropped to 104½ pounds and she was given I-131, 6 mc shortly after the Propranolol had been started. She has felt well since, pulse stabilizing at 80 and weight rising to 107 pounds one month after treatment. Two months after I-131 her T_4 was 7.0 mcg%. There was no exacerbation of her symptoms following the radioactive iodine.

Case 2. A 48-year-old female had a goiter for many years. For six months she had lost weight from 160 to 110 pounds, had developed muscle weakness and sweating, and thyrotoxicosis was diagnosed early in 1970. She was treated with a small dose of I-131 at that time and some improvement was noted, but when seen by us in June of 1970 she had pulse of 135, her weight was 104 pounds and she had an irregular thyroid gland, four times normal size. T_4 was 11.1 mcg%, I-131 uptake at 24 hours was 87%. Because the previous treatment had apparently been insufficient, Propranolol 80 mg per day was started and six weeks later 10 mc I-131 was given. Weight increased to 120 pounds, pulse dropped to 80 by the time the I-131 was administered, and she improved symptomatically, having no difficulty within the two month period following radioactive iodine.

Case 3. A 25-year-old Mexican National female who was two months pregnant when first seen. She had a six month history of goiter, tremor, palpitations, and smooth sweaty skin with a pulse of 100 and a smooth goiter enlarged three times normal. She was begun on PTU, but stopped voluntarily and was lost to follow-up for some two to three weeks. Unfortunately her T_4 was drawn after the anti-thyroid drug was begun. Two weeks after discontinuing PTU she reappeared obviously toxic, and it was elected to remove her thyroid. The reasons for this were her unreliability, the need for close supervision of pregnant women on PTU, and the belief that if surgery were to be done, it should be performed early in the second trimester. She was hospitalized and controlled quickly with Propranolol 120 mg a day plus SSKI. Two days after starting these drugs her symptoms improved and her pulse fell to 80. Surgery was undertaken and the postoperative course was uneventful. She has been lost to follow-up.

Case 4. A 22-year-old female had a goiter for two years and had later developed clinical thyrotoxicosis. Her thyroid was three times enlarged, her pulse was 100, and laboratory values included an I-131 uptake of 79%, T_4 of 18 mcg%. She was started on Methimazole, but developed a rash. PTU was given, but on one gram a day she was still symptomatic. On PTU 600 mg a day plus Propranolol 120 mg per day she was controlled. Thyroidectomy was performed on this regimen along with Lugol's Iodine and she had an uneventful postoperative course.

Case 5. A 65-year-old white female had noted weight loss and nervousness for one year. A nodule was palpated in the right lobe of her thyroid and the left lobe and isthmus could not be felt. Pulse was 80, and weight was 117 pounds representing a 15 pound weight loss over the preceding year. There was no cardiomegaly on x-ray and the electrocardiogram was interpreted as

normal. PBI was 7, but I-131 uptake was 49% at six hours and 53% at 24 hours with no uptake over the area of the left lobe. A TSH stimulation test was done which revealed the presence of a left lobe. A diagnosis of toxic adenoma of the right lobe of thyroid was made and the patient was put on Propranolol 90 mg per day for three weeks with some reduction in nervousness. Surgery was then performed with removal of the adenoma involving the right lobe of the thyroid and during the operation atrial flutter occurred with ventricular response of 160 per minute. Intravenous Propranolol 1 mg followed by two mg five minutes later failed to convert her rhythm or slow it down. Ouabain .6mg over two hours did convert her to a sinus rhythm of 60 per minute and she was maintained on Digoxin and oral Propranolol 90 mg per day. Two days later she had a recurrence of atrial flutter which responded to increasing Digitalis. She did well thereafter, Digitalis and Propranolol being stopped two weeks after surgery with no ill effects.

Case 6. A 30-year-old white male with a three month history of nervousness, 3-4 stools a day, lost from 238 to 190 pounds. He had been perspiring excessively and had noted prominent eyes. His pulse was 140, blood pressure 150/70, there was a fine tremor, proptosis, onycholysis, and his thyroid was diffusely enlarged three times. PBI was 11.4 mg%, T_4 11.1 mcg% and I-131 uptake was 60% at six hours and 77% at 24 hours. Propranolol 40 mg every six hours was given with a good clinical response in three days. He received I-131 8 mc and one month after treatment weight was 204, pulse 76, T_4 was 8mcg%, T_3 35.5 mcg% and he felt well.

Discussion

Although the number of patients included in this study is small, it would appear the Propranolol is a useful agent in preventing the hypermetabolic complications of thyroidectomy and thyroid irradiation. One patient developed cardiovascular complication following thyroidectomy and in view of her age and possible preexisting heart disease it is not possible to ascribe the atrial flutter to thyroid hormone excess exclusively; however, one must concede that Propranolol may have been ineffective in preventing a hypermetabolic complication in this patient. •

REFERENCES

[1] Soloman, D. H.: "Factors Affecting the Fractional Rate of Release of Radioiodine from the Thyroid Gland in Man." Metabolism, 5:667-681, 1956.

[2] Astwood, E. B.: "Treatment of Hyperthyroidism with Thiourea and Thiouracil"; JAMA, 122:78-81, 1943.

[3] Williams, R. H.: Textbook of Endocrinology; W. B. Saunders Company, Philadelphia, Fourth Edition, 1968, p. 215.

[4] Ibid., p. 214.

[5] Soloman, D. H., Bech, J. C. Vander Laan, W. P. and Astwood, E. B.: "Prognosis of Hyperthyroidism Treated by Antithyroid Drugs," JAMA, 152:201-205, 1953.

[6] Editorial, "Potassium Perchlorate and Aplastic Anemia," Brit. Med. J., 2, 1, 1520, 1961.

[7] Williams, op. cit., p. 220.

[8] Ibid., p. 217.

[9] Harrison, T. S.: "Adrenal Medullary and Thyroid Relationships," Physical Rev., 44:161-185, 1964.

[10] Editorial: "New Tactics for Hyperthyroidism: Sympathetic Blockade," Ann. Int. Med., 72:749-750, May, 1970.

[11] Shanks, R. G., Lowe, D. C., Hadden, D. R., McDevitt, D. G., and Montgomery, D. A. D.: "Controlled Trial of Propranolol in Thyrotoxicosis," Lancet, 1:993-994, May 17, 1969.

[12] Vinik, A. I., Primstone, B. L., and Hoffensberg, R.: "Sympathetic Nervous System Blockade in Hyperthyroidism," J. Clin. Endocrin., 28:725-727, May, 1968.

PICKER Medical Products

3890 ELM STREET — TEL. 388-5731 — DENVER, COLORADO 80207

Offices also in:

Colorado Springs, Colorado
2236 Glenwood Circle, 635-8768

Salt Lake City, Utah
21 Kensington Street, 487-7519

Albuquerque, New Mexico
113 Sierra Dr., S.E., 255-1288

Medical X-Ray Equipment

Accessories & Film

Nuclear Equipment

AS YOU LIKE IT...

A medical potpourri

Compiled by Andrew M. Babey, MD, Las Cruces, New Mexico

1. "The T-wave alterations in the electrocardiogram are usually transitory, but they may persist for several years or indefinitely, constituting a subsequent source of confusion in persons without a clear history of pericarditis." RESNIK, William H, HARRISON, T. R. in 'Principles of Internal Medicine,' Harrison, Adams, Bennett, Resnik, Thorn, Wintrobe, McGraw-Hill Book Company, fifth edition, 1966, p. 849.

2. "If you find yourself diagnosing inferior infarction from the limb leads, and anteroseptal damage or infarction from the chest leads, think of pulmonary embolism." Mariott, Henry J. L., Practical Electrocardiography, The Williams & Wilkins Co., 1968, p. 242.

3. "Rome grew powerful through her military and political genius; and then, from Greece, she learnt to live the life of the mind. We have grown powerful through our scientific and industrial genius. The only way in which we can justify that power, use it for our own lasting benefit, and contribute something permanent to the development of the human race, is to understand and spread a system of noble spiritual ideals. Some of these we ourselves are working out. Many others we derive from Christianity. And many—in art and philosophy and literature—we have received from Greco-Roman civilization, as a priceless legacy. The real duty of man is not to extend his power or multiply his wealth beyond his needs, but to enrich and enjoy his only imperishable possession: his soul." Highet, Gilbert, The Classical Tradition, Oxford University Press, 1957, p. 549.

4.

The Leaden-Eyed

Let not young souls be smothered out before
They do quaint deeds and fully flaunt their pride.
It is the world's one crime its babes grow dull,
Its poor are ox-like, limp and leaden-eyed.

Not that they starve, but starve so dreamlessly,
Not that they sow, but that they seldom reap,
Not that they serve, but have no gods to serve,
Not that they die but that they die like sheep.

From 'Selected Poems of Vachel Lindsay,' edited by Mark Harris, The Macmillan Company, 1963, p. 141.

5. "Words can be more powerful, and more treacherous, than we sometimes suspect; communication more difficult than we may think. We are all serving life sentences of solitary confinement within our own bodies; like prisoners, we have, as it were, to tap in awkward code to our fellowmen in their neighboring cells. Further, when A and B converse, there take part in their dialogue not two characters, as they suppose, but six. For there is A's real self—call it A_1; there is also A's picture of himself—A_2; there is also B's picture of A—A_3. And there are three corresponding personalities of B. With six characters involved even in a simple tête-à-tête, no wonder we fall into muddles and misunderstandings." FADIMAN, Clifton, Party of Twenty, Simon Schuster, New York, 1963, p. 171.

6. "Clinicians specializing in arthritis and rheumatology have devised many names to designate certain symptom complexes, with a view to more effective treatment utilizing available potent drugs and numerous physiotherapeutic modalities. This is all right insofar as it goes, provided we do not kid ourselves about it—we know next to nothing about the pathology of so-called fibrositis, myalgia, neuralgia, fasciitis, periarthritis, and so forth. Rheumatologists seem to be in a rut; what they write at present about nonarticular rheumatism is not essentially different than what was said 20 years ago." LICHTENSTEIN, Louis, Diseases of Bone and Joints, C. V. Mosby Company, 1970, p. 206.

7. "The days are gone when clinicians were confident of their ability to recognize deep venous thrombosis by physical signs. It is now known that about half such thrombi are undetectable without special methods of diagnosis. In any medical or surgical ward are lying a number of patients with silent phlebothrombosis which at any time may become dramatically manifest when an embolic bullet is shot into the pulmonary artery. If the embolism is small, anticoagulants offer a good chance of effective treatment; but few patients with massive embolism survive long enough for embolectomy or thrombolytic therapy to be livesaving." Prophylaxis of Venous Thrombosis, Lancet, January 16, 1971, p. 119.

8. "Finally, no discussion regarding diagnostic tests in urinary tract infections would be complete without mention of the 'urologic work-up.' It is axiomatic that all possible efforts to relieve obstruction be expended before embarking on repeated administration of antimicrobials for treatment of asymptomatic or recurrent acute episodes of bacteriuria. In men, we have taken the stand that even the initial episode of urinary tract infection, especially when associated with symptoms referable to the upper collecting system, demands urologic investigation. This work-up should include, in addition to the urine culture, intravenous pyelography, cystoscopy and voiding cystourethrography. By and large, a retrograde pyelogram is rarely indicated. However, by far the largest group of patients with urinary tract infection will be women. In them, structural abnormalities are far less frequent and there is little unanimity concerning the indication for urologic evaluation. In our practice, we do not obtain urologic evaluations in women with bacteriuria unless there have been bacteriologically documented symptomatic or asymptomatic recurrences. Once a thorough work-up is negative, however, the matter should not be pursued repeatedly, lest repeated manipulations themselves result in structural damage to the excretory system. It should be emphasized that despite intensive urologic investigation, the vast majority of women in our studies have not had any demonstrable urologic abnormalities. Lastly, we are not convinced that repeated urethral dilation or routine meatotomy or urethrotomy has favorably influenced the course of many of our patients." Petersdorf, Robert G., and Turck, Marvin, Some Current Concepts of Urinary Tract Infections, DM (Disease-a-Month) December 1970, p. 22.

9. ". . . there seems little reason to assume that cases of hyperthyroidism with normal serum T_4 and high serum T_3 values represent a basically different variety of Graves' disease. The factors favoring T_3 production have not yet been fully defined, but when they are operating, the stimulus to hormone overproduction may result in hypermetabolism and increase of the T_3 but not the T_4 concentration in serum. The clinical importance of this group of patients lies in the need for clinicians to be aware of the existence of a state of hyperthyroidism in which the standard screening tests for thyroid dysfunction may give normal results." Wahner, H. W., and Corman, C. A., Interpretation of Serum Tri-Iodothyronine Levels Measured by the Sterling Technic, New England Journal of Medicine, 284, No. 5, p. 229.

10. "Thus in a patient who has a disease known to predispose to disseminated intravascular coagulation, no past history of coagulation abnormality, and no evidence of liver disease, the following are sufficient to justify the immediate institution of therapy: low platelet count, prolonged prothrombine time, partial thromboplastin time, and thrombine time, reduced fibrinogen. These values can easily be available within 45 minutes of drawing blood, thus allowing treatment to be started rapidly." Karpatkin, Margaret, Diagnosis and Management of Disseminated Intravascular Coagulation, Pediatric Clinics of North America, 18, No. 1, February 1971, p. 31.

11. "There is not in the world so toilsome a trade as the pursuit of fame: life concludes before you have so much as sketched your work." Jean Bruyere, French essayist, Los Angeles Times, February 21, 1971.

12. "There is no limit to the good a man can do if doesn't care who gets the credit." Branch, Judson B., Thoughts . . . on the Business of Life, Forbes, March 1, 1971, p. 78.

13. "All sorts of allowances are made for the illusions of youth; and none, or almost none, for the disenchantments of age." Stevenson, Robert Louis, Thoughts . . . on the Business of Life, Forbes, March 1, 1971, p. 78.

14. "There is no magical 'digitalizing' dose of digitalis. Weissler and his associates have clearly shown that increasing doses of digitalis yield corresponding increases in the drug's effects. Thus there is a graded dose-response relationship with digitalis therapy. Small doses of digitalis cause small increases in the force of myocardial contraction; increasing concentrations of the drug cause progressive increases in the force of contraction. There is no single point at which the patient is suddenly 'digitalized.' Because there is no 'all or none' response of the heart to digitalis, there may not be a need for an initial loading dose. Near-toxic concentrations of digitalis are not necessary for therapeutic effects. Smaller doses increase the force of cardiac contraction and thereby reduce heart failure." Ewy, Gordon A., and Marcus, Frank I., Digitalis Therapy in the Aged, American Family Physician, General Practice, February 1970, p. 81.

15. ". . . How much of a hypertensive workup should we do? I think there is a tendency to do too much. I think that what our ivory tower friends feel is a satisfactory workup is impractical. It is extremely expensive and probably costs 20 to 30 times as much as the essentials that those of us do who see patients in daily practice." Chamberlain, Francis, Drugs to Bring the Pressure Down, Emergency Medicine, January 1971, p. 215.

Acute hypokalemia occurring during the treatment of diabetic acidosis

Ulton G. Hodgin, Jr., MD,* Albuquerque, New Mexico

THE APPEARANCE OF acute life-threatening hypokalemia during the treatment of diabetic ketoacidosis occurs rarely, but when it is encountered, early recognition is imperative so that therapy may be instituted rapidly to avoid cardiac standstill. The following case illustrates this situation.

CASE REPORT

A fifty-year-old male had noted excessive thirst and increased urinary output and had lost twenty-five pounds over a three month period of time. Ten days prior to hospitalization, he was involved in an automobile accident which upset him, and he resumed his previous alcoholic habit by ingesting one-half pint of whiskey per day. Five days prior to hospitalization, he discontinued his alcoholic intake and subsequently ingested nothing but fluids—mainly water and milk. He experienced daily vomiting and complained of an almost continuous urinary output. He presented to the emergency room complaining of nervousness and tremulousness, with the thought he was developing delirium tremens. The patient was not taking digitalis or any other medications.

Physical examination revealed a dehydrated, plethoric white male with markedly dehydrated buccal mucus membranes. Pulse rate was 100. The patient was weak, but he could move all four extremities and he was able to stand without support. Blood was drawn for glucose and electrolyte content and intravenous Ringer's Lactate was begun. Serum electrolytes revealed a bicarbonate content of 12 mEq/L, chloride 99mEq/L, sodium 136 mEq/L and potassium 3.2 mEq/L. The blood sugar was 975 mg/100 ml and the blood urea nitrogen was 42 mg/100 ml (Table 1). Diagnosis of diabetic acidosis was made, and the patient was given 100 units of regular insulin. Approximately forty-five minutes later, he was completely paralyzed except for movement of his head from side to side. He was unable to speak and was totally areflexic. Rapid pulse rate was noted. An electrocardiogram revealed ventricular tachycardia, at times bidirectional in character, at a rate of approximately 170. (Fig. 1). Incidentally, the patient had serum drawn for electrolyte and glucose content approximately fifteen minutes prior to this acute situation, and thirty minutes following insulin injection. These values are listed in Table 1. Note a serum potassium value of 1.0 mEq/L. Sixty milliequivalents of potassium chloride were placed in one liter of Ringer's Lactate and this solution was delivered intravenously over approximately a two hour period. Over the next twenty-four hours, an additional 400 milliequivalents of

TABLE 1

Serum electrolytes taken prior to, and thirty minutes after, intramuscular insulin.

	Prior to Insulin	After Insulin
BUN	42 mg%	———
GLUCOSE	975 mg%	884 mg%
CO_2	12 mEq/L	8 mEq/L
CL	99 mEq/L	105 mEq/L
NA	136 mEq/L	139 mEq/L
K	3.2 mEq/L	1.0 mEq/L

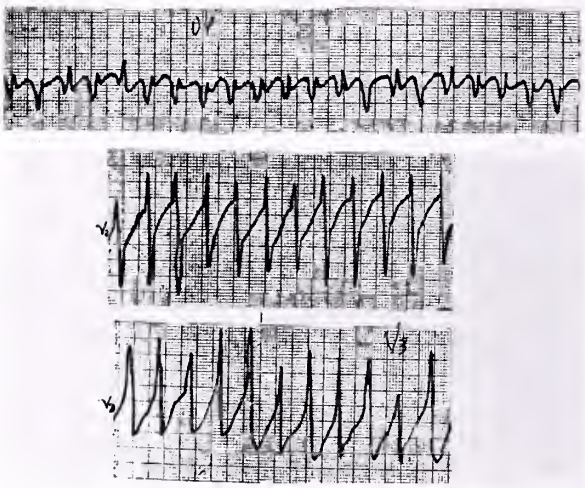


Fig. 1. Electrocardiogram showing ventricular tachycardia taken 45 minutes after an intramuscular injection of 100 units of regular insulin. Note the intermittent bidirectional character of this arrhythmia.

*Clinical Associate, University of New Mexico School of Medicine, Albuquerque.

potassium chloride were given intravenously and at the end of this time, the serum potassium was found to be 4.3mEq/L. Concomitantly, the patient's strength returned and his cardiac arrhythmia resolved. His subsequent hospital course was complicated by gastrointestinal bleeding, but this ceased, and he was discharged two weeks later.

Discussion

Fig. 2 illustrates the intracellular and extracellular distribution of potassium in a normal 70 kilogram male.[1] It should be noted that over 98 per cent of total body potassium is located intracellularly and that the ion moves freely across the cell membrane. During diabetic ketoacidosis, this intracellular-extracellular relationship and total body economy of potassium is disturbed as follows:

1. In patients with uncontrolled diabetes, when glycogen stores in cells are depleted, potassium leaves the cells. There is an intracellular shift of potassium when more normal carbohydrate metabolism is restored.[1]

2. When diabetic acidosis is present, there is a shift of hydrogen ions into cells and concomitant movement of potassium out of cells. Again, when acidosis is relieved, potassium moves back into cells.[1,2]

3. During diabetic acidosis there is much anion urinary loss, mainly in the form of ketones. This obligates cation loss, including potassium, and as much as 150-200 milliequivalents may be lost by this route in 24 hours.[3]

4. Many patients in diabetic acidosis are vomiting, involving further loss of potassium.

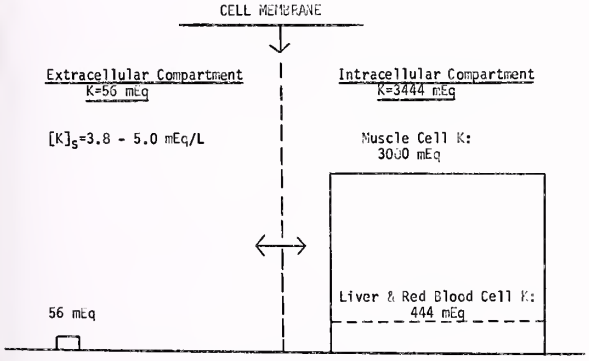


Fig. 2. Distribution of potassium in the body. (From HYPERKALEMIA AND HYPOKALEMIA by S. Papper and R. Whang in "Disease-a-Month." Copyright 1964, Year Book Medical Publishers, Inc. Used by permission.)

5. Finally, most patients with diabetic acidosis are ingesting no food or drink and so intake of potassium is nil.

So, during diabetic acidosis, there is a total body reduction of potassium through urine and gastrointestinal losses. However, this is not reflected in the serum potassium concentration since there is a shift of potassium out of cells into the extracellular space. As a result of this shift of potassium out of cells, serum potassium concentrations in patients with diabetic acidosis are usually normal or high. In one large series of cases, the average concentration was 5.5 mEq/L.[4] However, once insulin is administered with restoration of intracellular glycogen and reversal of protein catabolism, potassium shifts into cells and serum potassium will fall. In the average patient who begins with a normal or high serum potassium, hypokalemia will be encountered 4-5 hours after treatment is begun.[3,5] But in the patient with diabetic acidosis with an initial low serum potassium, total body potassium stores are profoundly depleted and consequently life-threatening hypokalemia may appear shortly after treatment is initiated.

Serious clinical manifestations of hypokalemia do not appear until the serum concentration of potassium falls below 2.5 mEq/L. Symptoms which may then appear include lethargy, drowsiness, confusion, and finally coma.[1] Skeletal muscle symptoms include pain, weakness, and finally flaccid paralysis;[1] similarly, smooth muscle of the gastrointestinal tract may be involved, resulting in ileus.[6] Effects of acute hypokalemia on the heart include disturbances of intraventricular and atrioventricular conduction, and a variety of atrial and ventricular arrhythmias, including ventricular tachycardia and ventricular fibrillation.[7]

There are those who have sugested that cardiac arrhythmias due to hypokalemia are related to the rapidity of extracellular potassium reduction rather than the absolute serum potassium level.[7,8] In the patient reported here, the serum potassium fell from 3.2 mEq/L to 1.0 mEq/L in approximately forty-five minutes. The ventricular tachycardia that followed was probably the result of this sudden change in intracellular-extracellular potassium ratio. However, one

might argue that other non-measured modalities such as pH, serum calcium and magnesium were also changing rapidly and may have contributed to the arrhythmia.[2,7]

The therapy of severe symptomatic hypokalemia is the administration of intravenous potassium. The patient reported here had a serum potassium of 1.0 mEq/L fifteen minutes before his symptoms of acute hypokalemia were evident. Therefore, at the time his acute hypokalemic state was discovered, it is likely his serum potassium was less than one milliequivalent. In such a situation, it can be estimated that a total body potassium depletion of at least 500 milliequivalents was present—in fact, probably even more.[9] Our patient received 60 milliequivalents of potassium chloride diluted in 1,000 cc of Ringer's Lactate during the first two hours of treatment, and an additional 400 milliequivalents of potassium was given during the subsequent 24 hours.

When repairing serum potassium, it should be kept in mind that if the patient is acidotic, his serum potassium is partially maintained by his acidotic state. To administer bicarbonate to such a patient would favor an intracellular shift of potassium and further intensify his hypokalemic state. One should also remember that urinary output must be carefully monitored in any patient receiving potassium — in particular, intravenous potassium. In the presence of anuria or oliguria, hyperkalemia may be encountered sooner than anticipated. Finally, as this case illustrates, if in diabetic acidosis the initial serum potassium is low, potassium replacement should be initiated early in treatment—that is, before or concomitantly with insulin administration.

Summary

A fifty-year-old male with diabetic ketoacidosis and a serum potassium of 3.2 mEq/L was given 100 units of regular insulin intramuscularly. Within forty-five minutes he was paralyzed, areflexic, and had bidirectional ventricular tachycardia. Serum potassium recorded a short time prior to this acute situation was 1.0 mEq/L.

The patient was treated with intravenous potassium chloride with disappearance of his arrhythmia and other manifestations of his acute hypokalemic state.

The problem of acute hypokalemia occurring during the treatment of diabetic acidosis is discussed from the standpoint of mechanism, symptoms and treatment. •

REFERENCES

1 Papper, S., Whang, R.: Hyperkalemia and hypokalemia. Disease-a-Month, June 1964.

2 Abramson, E., and Arky, R.: Diabetic acidosis with initial hypokalemia. JAMA, 196:115-117, 1966.

3 Seldin, D. W., and Tarail, R.: The metabolism of glucose and electrolytes in diabetic acidosis. J. Clin. Invest., 29:552-565, 1950.

4 Cohen, A. S., Vance, V. K., Runyan, J. W., Hurwitz, D.: Diabetic acidosis: an evaluation of the cause, course, and therapy of 73 cases. Ann. of Intern. Med., 52:55-86, 1960.

5 Nabarro, J. D. N., Spencer, A. G., and Stowers, J. M.: Metabolic studies in severe diabetic ketoacidosis. Quart. J. of Med., 21:225-243, 1952.

6 Leaf, A., Santos, R. F.: Physiologic mechanisms in potassium deficiency. New Eng. J. Med., 264:335-341, 1961.

7 Surawicz, B.: Relationship between electrocardiogram and electrolytes. Amer. Heart J., 73:814-834, 1967.

8 Pick, A.: Arrhythmias and potassium in man. Amer. Heart J., 72:295-306, 1966.

9 Scribner, B. H., and Burnell, J. M.: Interpretation of serum potassium concentration. Metabolism, 5:468-479, 1956.

Hearing loss in preschool New Mexico children

J. Albert Browder, MD*, Albuquerque, New Mexico

THIS ARTICLE DEALS with the results of a survey conducted in 1969 on preschool children with recognized hearing loss in Albuquerque, New Mexico. Subjects for the study consisted of children enrolled in the two auditory training programs. The goals of the study were fourfold: first, identification of the number of afflicted children and their degree of handicap; second, the frequency of the various causes for hearing losses, especially of congenital rubella; third, the frequency of other handicaps; and fourth, the children's ages at the time of diagnosis of hearing loss.

The children were enrolled either in the Albuquerque Hearing and Speech Center or the Albuquerque Preschool Division of the New Mexico School for the Deaf. Both services are day programs serving appropriate children of the Albuquerque-Bernalillo County area. A total of 43 children were attending these programs. The total estimated number of children below age six was 51,000 in this same period based on figures compiled by Albuquerque Public Schools.[1] These two programs attempt to serve all children in the community with communication needs. Their fees are based on a sliding scale, with no child excluded for inability to pay. All children with more than minimal hearing loss should be expected to be included in such programs, but this type of study will not include children with unilateral hearing loss, children identified but failing to participate in such programs, children too severely retarded to be able to function in a training situation of this type, and, of course, yet unrecognized hearing loss.

*Dr. Browder is Assistant Professor, Pediatrics, University of New Mexico School of Medicine, Albuquerque, New Mexico, and Medical Director, Mental Development Center.

Method

This study included an orientation of the parents of these children as to the purposes of the survey and the test to be performed on their child should he be involved. The parents were then asked to complete a history on their child. This was supplemented where appropriate with data from records of the centers. The information obtained included any family history of deafness, age at the time of diagnosis, known or suspected cause of hearing loss, the degree of hearing loss, the place of residence at the time of birth, the professional making the diagnosis, maternal history during this pregnancy for rash or other symptoms of rubella, history of postnatal rubella or postnatal rashes at the time of the survey, other complications of pregnancy, and other defects in the child apart from those found in the auditory system. Previous results of audiologic testing by competent examiners were available through the center's records. The children and their parents in the study were not interviewed or examined individually because of limits of time and funds.

All children having parental consent, a total of 41 out of 43 children enrolled, had a serologic test for the presence of rubella antibody (hemagglutination inhibition test). This test was performed by the New Mexico State Laboratory and a titer of greater than 1 to 10 was used as evidence of past infection. The details of this part of the study are reported elsewhere in greater detail,[2] but findings will be discussed here in relation to the incidence of other causes for hearing loss. No children in this community had received rubella vaccine at this time.

Results

Fig. 1 shows the age and degree of loss at the time of diagnosis and initiation of treatment. Three children were excluded where the loss originated postnatally. The tabulated loss shown is that reported in the better ear where there is a difference. As can be seen in this figure, the severity largely did not affect the age of diagnosis, i.e., severe loss was not recognized until after age two in nine children. This age of intervention has been recognized to be of great import to the ultimate outcome and future development of the child with hearing loss as reviewed by Ferguson[3] and Lutterman.[4] Therefore, it was significant that of the eight children diagnosed in early infancy only three did not have prior sibling involvement. Except in these families where other siblings were involved, most children were not diagnosed before the age of twelve months—only seven of thirty-six. Equally disturbing, seven were not recognized until after three years of age. The degree of loss in relation to age when diagnosed is of interest (Fig. 1). The majority of children had moderate or greater loss (thirty-six of thirty-eight), and this raises the question whether other children, especially those with mild loss or only a high frequency loss, may not yet be identified. The observed frequency here of slightly less than 1/1000 is well below the national figure cited by Konigsmark.[5] The present incidence is consistent, however, with the similar survey of Robinson, *et al.*[6] who found 5.56 children per 10,000 live births.

The high incidence of children born outside the city reflects our migratory population (Table 1). Six were born outside of Albuquerque or Bernalillo County but within the state, while ten were born outside of New Mexico.

The frequency of multiple handicaps among these children should be appreciated in planning programs. The types of defects are shown in Table 3. There were seven with combinations of developmental disabilities plus physical handicaps of which three were rubella positive. In addition, one child with myelomeningocele was not permitted by her parents to be included in the study.

The results of the historical data are shown in Table 1 while the frequency of the various etiologies are shown in Table 2. The etiologies listed are those found by Robinson, *et. al.*,[7] and the findings in this survey as to causes of hearing loss appeared generally consistent with their recent, larger report involving preschool children. The number of children (19 of 41) for whom the diagnosis was felt to be due to congenital rubella was based on positive serologic studies. This incidence was unexpectedly high as discussed

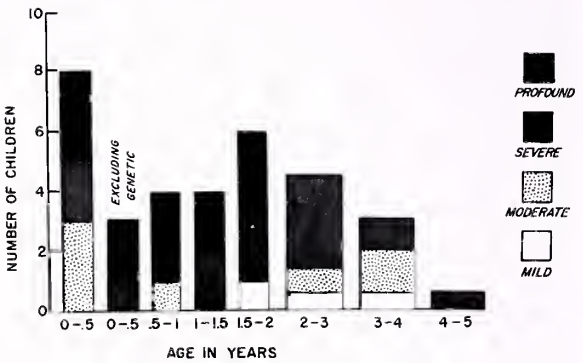


Fig. 1. Age of diagnosis of 38 children in relation to degree of hearing loss (excludes 3 postnatal origin).

TABLE 1
HISTORICAL BACKGROUND OF 41 CHILDREN WITH HEARING LOSS

Sex	19 females 22 males
Place of Birth	
Albuquerque	25
New Mexico, exclusive of Albuquerque	6
Out of State	10
Average age when diagnosed (excludes children with prior family history and postnatal cases)	25 months
Other major defects or slow development	12

TABLE 2
CAUSES OF BILATERAL HEARING LOSS 41 CHILDREN

Prenatal	
Rubella	19
Other infections	—
Drugs and toxins	—
Genetic	7
Perinatal-kernicterus	1
Postnatal	
Ear Infections	—
Meningitis	3
Encephalitis (measles)	—
Drugs (strep)	—
Unknown	11
TOTAL	41

elsewhere.[2] In addition, it should be noted that one mother with a positive history of rubella during her pregnancy refused to permit this study as did the parents of the child afflicted with myelomeningocele and hydrocephalus. In addition there were three cases with positive maternal history included among the unknown cases because of negative serologies. These may still be related to congenital rubella. It is now recognized that some children have antibodies which are lost or at least are not detectable by this test by the time the child is three years of age.[8] Thus a few of these children with negative serologic tests may have had prenatal involvement. Likewise a positive test may indicate postnatal disease, but the parents of these children all gave negative histories for rubella after birth.

A familial incidence of hearing loss was reported in seven children and these therefore were assumed to represent the hearing loss due to genetic etiology. Since the diagnosis in all these children was established by multiple involvement in the family, it may be suspected that some of the unknown cases might also be examples of isolated unrecognized genetic etiologies. Indeed one child was transferred to the genetic category after the study was initiated because a younger sibling was recognized to have a hearing loss. Many inherited conditions are known to cause hearing loss,[5] and the 17 percent found here is probably consistent with the figure of 11.5 per cent in the previously cited study of Robinson[7] on a similar age group of 200 children. Konigsmark[5] states that up to about one-half of the children in the United States with hearing loss have been affected on an inherited basis. Documentation for that statement, however, was not supplied in his article.

TABLE 3
OTHER DEFECTS AND DEVELOPMENTAL DISORDERS AMONG 41 PRESCHOOL CHILDREN WITH HEARING LOSS

3	congenital heart disease
5	cerebral palsy
2	eye defects
7	slow mental development
1	central communication disorder plus hearing loss
5	multiple defects other than hearing

Implications

These findings indicate a delay of one to four years before the diagnosis of hearing loss was established in the majority of cases and clearly points to the need for a greater awareness of the problem among physicians caring for children. If we are to improve these findings we must take a careful look at children's medical history for any contributing factors that might place the child at risk, do a careful evaluation of all infants' behavior for characteristic changes seen in the child with hearing loss, and recognize the importance of obtaining an adequate early audiological evaluation where any question of hearing loss or delayed language development exists. Only with such an orientation will early active intervention be initiated, ideally before the age of one year.[4] The provision of such early identification services to children in rural areas in New Mexico and the rest of this region remains a part of the overall enigma of providing services for our sparsely populated areas. The migratory nature of the children served, as reflected in their places of birth, points to the need of

PUBLICATION PRINTING...

NEWSPAPERS • MAGAZINES
ANNUALS • QUARTERLIES
BOOKLETS • BROCHURES
REPORTS • ROSTERS • PROGRAMS
HANDBOOKS • CATALOGUES

EDITORIAL ASSISTANCE • BINDING
ART DEPARTMENT • MAILING

Publishers Press, Inc. / Monitor Publications

2177 W. 7th DENVER 892-0166

planned developmental services to meet problems arising outside the community and state. An excellent example of this type of problem is the rubella epidemic of 1964 which was much more devastating in other regions of the country. Five of these afflicted children in this study were from out of state.

A look at the etiologies of hearing loss of these children clearly stresses the continuing need for better medical care since most of the cases could have been prevented by more effective control of pediatric problems including kernicterus, bacterial meningitis, and congenital rubella. Hopefully the widespread use of now available vaccine will mark an end to the high frequency of rubella as a cause of hearing and other birth defects. The frequency of the genetic influence points to the unmet need for further genetic counseling and genetic education among both the public and the medical profession. It would appear from study of these figures that the need for broad audiological programs in the future might be eliminated if presently existing medical skills were available and accepted by all segments of our population. •

The author expresses his appreciation for the cooperation of Miss Donna Groves of the School for the Deaf, and Mrs. Maryan Moyer of the Hearing and Speech Center.

REFERENCES

1 "Economic, Population, and Housing Characteristics: Albuquerque Area 1960-2000," Future Schools Research Study, Albuquerque, New Mexico, Albuquerque Public Schools, 1968.

2 Browder, J. A.: "How Often is Hearing Loss Due to Rubella?" Clin. Pediat. Submitted for publication.

3 Ferguson, C. F.: "Changing Concepts in Otolaryngology for the Pediatrician," Pediatrics, 25:1043-1066, 1960.

4 Lutterman, D. M., and Chasin, J.: "The Pediatrician and the Parent of the Deaf Child," Pediatrics, 45:115-116, 1970.

5 Konigsmark, B. W.: "Hereditary Deafness in Man," New Eng. J. Med., 281:713-720, 1969.

6 Robinson, G. C., Kendall, D. C., and Cambon, K. G.: "Hearing Loss in Infants and Preschool Children: I. The Development of a Provincial Preschool Hearing Program and Some Preliminary Results," Pediatrics, 32:103-114, 1963.

7 Robinson, G. C., Brummitt, J. R., and Miller, J. R.: "Hearing Loss in Infants and Preschool Children: II. Etiological Considerations," Pediatrics, 32:115-124, 1963.

8 Hardy, J. B., Level, J. L., and Gilkeson, M. R.: "Declining Antibody Titers in Children with Congenital Rubella," J. Ped., 75:213-220, 1969.

Rural health care in New Mexico--

An analysis with a proposal for providing care in rural areas

Ray Sanchez and Gaither Bynum,* Albuquerque, New Mexico

This study is an effort to investigate the distribution of health manpower in the State of New Mexico. The data demonstrate that 60 per cent of the State's population reside in areas with sufficient physician density to provide the minimum of adequate health care. Twenty per cent of the State's population live in areas with physician densities greater than zero, but less than that required to maintain minimum of adequate health care. The most discouraging data indicate that 20 per cent of the State's population reside in areas completely devoid of physicians.

AS MEDICAL STUDENTS in an era of social change and community involvement, we are constantly made aware of health problems and social inequalities. More specifically, we share a feeling of dissatisfaction and concern over the health care accorded portions of New Mexico's population, particularly the rural population. If we bring up the question of the adequacy of the State's health care delivery system, a common response will most likely be that the State's population is not receiving adequate health care. What we propose to do in this article is to show how really inadequate the health care is. We will point out the locations and numbers of those population groups in rural New Mexico receiving inadequate health care, calculate the degree of inadequacy, and present a plan for alleviating the situation.

*Third Year Medical Students at the University of New Mexico School of Medicine, Albuquerque, New Mexico.

Since the physician is lamentably the sole source of diagnosis and treatment, we must accept the traditional view that the physician density in New Mexico (Fig. 1) is equivalent to the amount of health care in a given area. Changes in physician density (amount of health care) over 14 years are illustrated for each county. (Fig. 2). The counties represented as losing their physician/population ratio are those counties that are predominantly rural and have a high indigent population. These data are graphically presented in Fig. 3. It is worthwhile noting that the period of rapid increase in physician densities began with the inception of

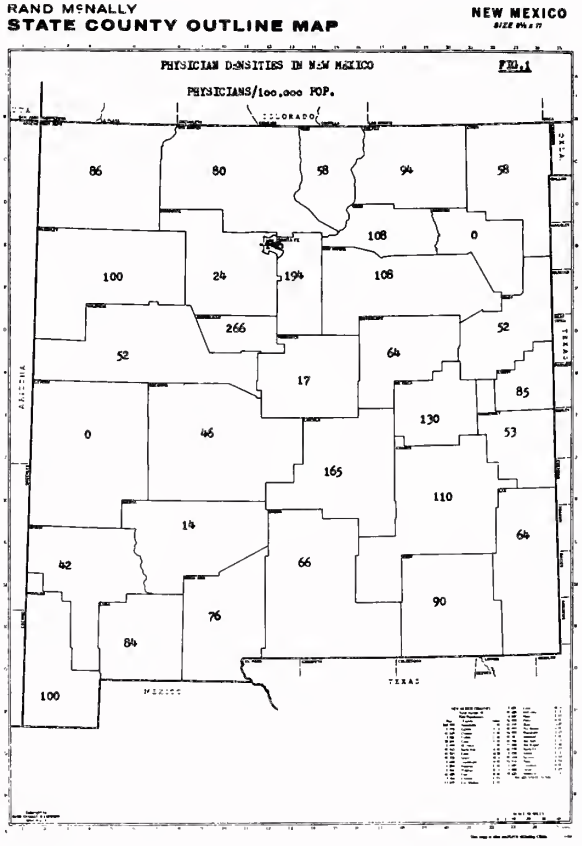


Fig. 1

our medical school. Fig. 3 dramatically points out the fact that the relative increase of available health care is a direct function of existing physician densities and that those areas with limited physician densities tend to lose what they have. "Them that has, gets," or "El que llora mama."

The data presented thus far are in terms of physician densities or amounts of health care. Adequacy of health care is dependent upon the definition of the smallest physician density consistent with the well-being of the patient population. The physician density necessary for minimumly adequate health care is considered by default† to be the national average, 149 physicians/100,000 population. The delineation of locales with inadequate health care is, therefore, achieved by theoretically incorporating the population base around a known number of doctors until the physician density drops to 149/100,000 or until the population is beyond a reasonable driving time (defined here as one hour.) Using this technic, approximately 60 per cent of the State's population is incorporated into areas receiving the minimum adequate health care. Since at this point in time our primary concern is rural health care, no attempt was made to differentiate the health care of the "haves" from the "have nots" in towns with physician densities less than the minimum 149/100,000 but greater than zero. In these towns (containing 20 per cent of New Mexico's population) in which the health manpower cannot adequately serve its own town's people it is assumed that the people in the surrounding area receive either inadequate care or at best only emergency care. Rural people outside the two areas (approximately 20 per cent of New Mexico's population) are by definition then without health care or receive it only on an emergency basis. A graphical representation of this very important point is presented in Fig. 4.

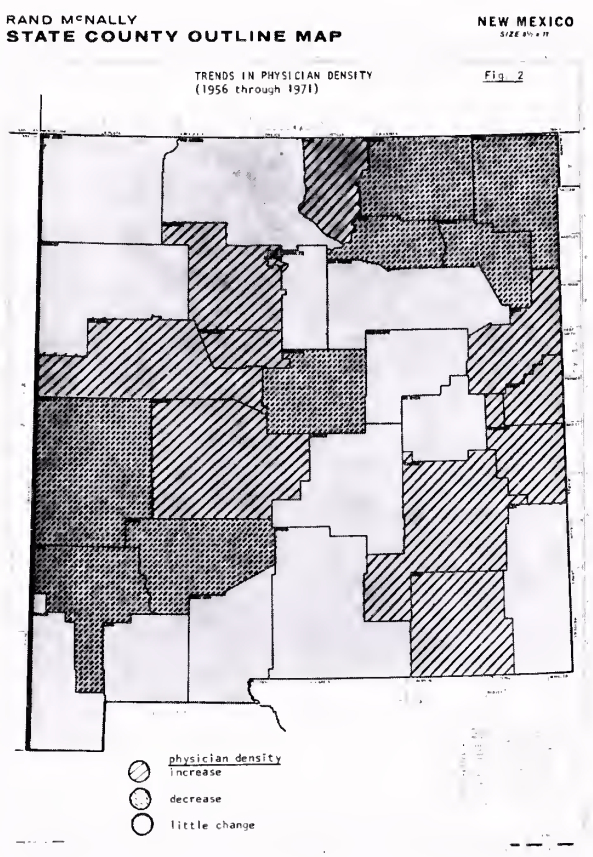


Fig. 2

†From the Commission on Health Manpower Resources, 1968.

Summary

The data indicate that:

1. Sixty per cent of New Mexico's population reside in areas with a physician density greater than 149/100,000, thus capable of supplying them with minimum adequate health care. These people occupy 15 per cent of the state's area.

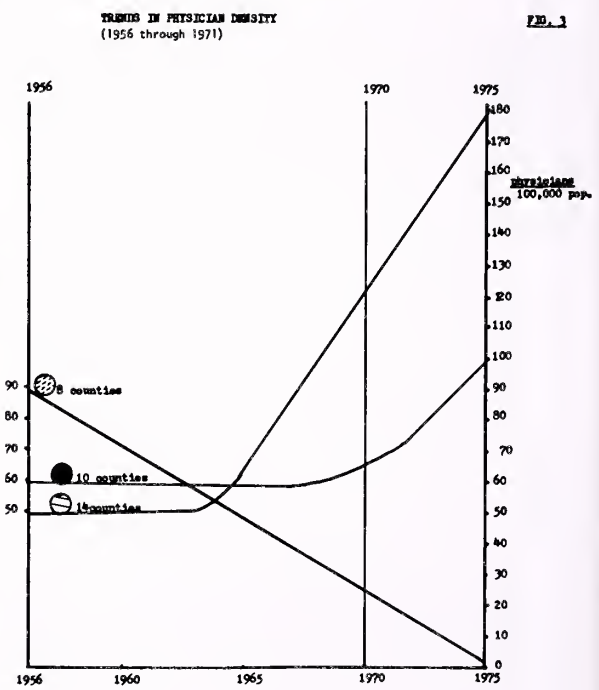


Fig. 3

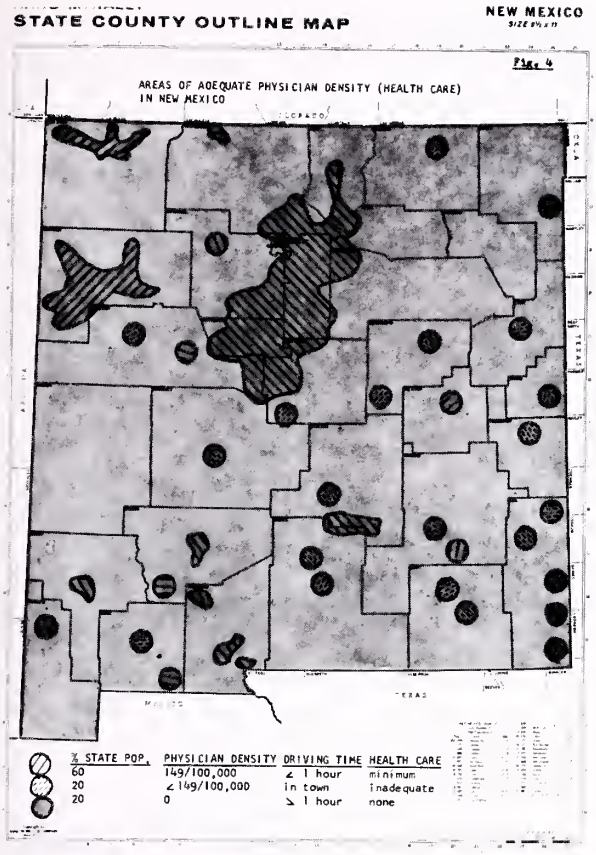


Fig. 4

2. Twenty per cent of New Mexico's population reside in towns with physician densities greater than zero, but not less than 149/100,000, an insufficient amount to deliver adequate health care.

3. Twenty per cent of New Mexico's population reside in areas of zero physician density and receive no health care, or health care on an emergency basis only. These people occupy 80 per cent of the State's area.

4. Those areas in New Mexico with low physician densities are predominantly rural — and they are losing the few physicians they have.

The summary of our data is discouraging. At a minimum, 20 per cent of New Mexico's population, predominantly rural, is without health care. To subjectively evaluate the state of rural health care in New Mexico, random in-home interviews with rural residents of Catron and Mora counties (Fig. 1) were recorded on video tape. Some opinions common to all those interviewed were:

1. Distance is a major factor in determining whether a family will seek medical attention.

2. The tendency among rural populations is toward emergency health care; for multiple reasons these people seek out medical attention only in times of severe crisis.

3. Health needs were defined in terms of a lack of medical manpower.

4. There were no objections to the use of subinterns or paramedical personnel for the delivery of primary health care.

Conclusion

With the advent of the University of New Mexico School of Medicine, an untapped reservoir of health manpower has been made available. Utilizing the following concepts, the medical school working in cooperation with local practitioners and the state health and social service organizations could do much to alleviate the problems in rural health service described above.

We believe that clinics should be established in areas devoid of, or severely lacking in health care facilities and manpower as defined by the above data. The specific needs of a particular community have to be established, in cooperation with a policy committee from the community itself, to insure a mutual involvement rather than the superimposement of concepts from the state level onto the local population. The clinics and their personnel would be under the auspices of an interdisciplinary department in the medical school. It is suggested that staffing of these clinics be organized around subinterns, (fourth year medical students) and that Health Service Corp. physicians, paramedics, and other personnel be inserted into such a system as they become available. Within defined regions of the state, local practitioners would act as preceptors and accept referrals beyond the competence of clinic personnel. For this service local practitioners would receive a base fee and credit for continuing education. Clinics would be connected to local practitioners and to the University of New Mexico School of Medicine via audiovisual systems. •

STANFORD UNIVERSITY SCHOOL OF MEDICINE

OFFICE OF POSTGRADUATE MEDICAL EDUCATION

announces an interdepartmental course on

INTENSIVE CARE

November 1 - 5, 1971

at the

STANFORD MEDICAL CENTER

This course, including lectures and practical demonstrations, is designed to review in detail the practical aspects of the management of the critically ill patient. Subjects to be covered include:

Resuscitation; shock; monitoring; arrhythmias; vein bypass for impending myocardial infarction; hypertensive crises; surgical treatment of the complications of myocardial infarction.

Thromboembolism; applied pulmonary physiology; respiratory failure; mechanieal ventilators; intractable asthma.

Acute renal failure; diabetic ketoacidosis and hyperosmolar eoma; lactic acidosis; adrenal crisis; hyper- and hypokalemia; hyper- and hypocalcemia.

Mechanisms of hemostasis; laboratory tests of coagulation; replacement and component therapy; eongenital and acquired eoagulation disorders; platelet disorders; defibrination and fibrinolysis; acute hemolyses; transfusion reactions.

Gram-negative sepsis; meningitis; upper gastrointestinal hemorrhage; drug ingestion; cerebral death; management of the cerebrally-dead donor.

The course will be presented by the following members of the faculty of the School of Medicine:

Edwin Alderman, M.D.
Roy B. Cohn, M.D.
William P. Creger, M.D.
Frederic L. Eldridge, M.D.
Grant Fletcher, M.D.
Robert H. Goldman, M.D.
Peter L. Greenberg, M.D.
Peter B. Gregory, M.D.
Randall B. Griepp, M.D.
John W. Hanbery, M.D.
Donald C. Harrison, M.D.
Laurence H. Kedes, M.D.
Jack Lazerson, M.D.
Glen A. Lillington, M.D.
John A. Luetscher, M.D.
Roy H. Maffly, M.D.
Thomas C. Merigan, M.D.
Mark G. Perlroth, M.D.
Judith G. Pool, Ph.D.
Richard L. Popp, M.D.
Gerald M. Reaven, M.D.
Eugene D. Robin, M.D.
Edward Rubenstein, M.D.
Stanley L. Schrier, M.D.
John S. Schroeder, M.D.
Alfred P. Spivack, M.D.
Norman E. Shumway, M.D.
James Theodore, M.D.
Kenneth L. Vosti, M.D.

APPLICATION FORM

INTENSIVE CARE — November 1 - 5, 1971
Fee: $200

NAME_____
Last First Middle

ADDRESS_____
Street City State Zip Code

MEDICAL SCHOOL_____ Degree_____ Year_____

TYPE OF PRACTICE_____

Please make your check payable to STANFORD UNIVERSITY SCHOOL OF MEDICINE and mail to the Office of Postgraduate Medical Education, Stanford University School of Medicine, M-121, Stanford, California 94305.

Attendance Limited — Advance Registration Required.

vacation in
a vial:
the spasm
reactors
in your practice
deserve

"the Donnatal® Effect"

	each tablet, capsule or 5 cc. teaspoonful of elixir (23% alcohol)	each Donnatal No. 2	each Extentab®
hyoscyamine sulfate	0.1037 mg.	0.1037 mg.	0.3111 mg.
atropine sulfate	0.0194 mg.	0.0194 mg.	0.0582 mg.
hyoscine hydrobromide	0.0065 mg.	0.0065 mg.	0.0195 mg.
phenobarbital (warning: may be habit forming)	(¼ gr.) 16.2 mg.	(½ gr.) 32.4 mg.	(¾ gr.) 48.6 mg.

Brief summary. Side effects: Blurring of vision, dry mouth, difficult urination, and flushing or dryness of the skin may occur on higher dosage levels, rarely on usual dosage. Administer with caution to patients with incipient glaucoma or urinary bladder neck obstruction as in prostatic hypertrophy. Contraindicated in patients with acute glaucoma, advanced renal or hepatic disease or a hypersensitivity to any of the ingredients.

A. H. ROBINS COMPANY, RICHMOND, VIRGINIA 23220

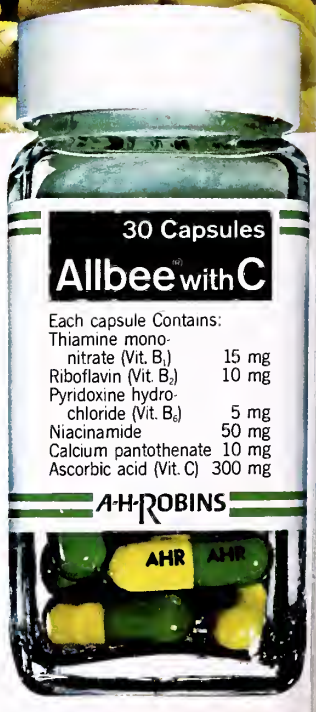
A·H·ROBINS

2 ways to provide a month's therapeutic supply of Vitamin C: 180 lemons or 30 Allbee® with C

As a source of ascorbic acid, the lemon really hits a high C (50 mg.). But your patient would still have to eat 180 lemons every month—6 a day—to get a therapeutic dose. And as the calypso singer puts it, "one hundred eighty lemons is impossible to eat." Fortunately, a bottle of 30 Allbee with C capsules (taken one capsule daily) supplies as much Vitamin C as all those lemons, plus full therapeutic amounts of the B-complex vitamins. For example, as much B_6 as two pounds of corn. Allbee with C is no lemon! This handy bottle of 30 capsules gives your patient a month's supply at a very reasonable cost. Also the economy size of 100. Available at pharmacies on your prescription or recommendation.

A. H. Robins Company, Richmond, Va. 23220

A·H·ROBINS



Primary pulmonary histiocytosis X in a female patient*

James C. Kraner, MD, PhD, and Rodger E. MacQuigg, MD,
Albuquerque, New Mexico

HISTIOCYTOSIS X IS THE name which has been assigned to a group of diseases formerly called eosinophilic granuloma, Hand-Schüller-Christian disease, and Letterer-Siwe disease. This disease is characterized by reticuloendothial cell proliferation which can infiltrate and replace bone or soft tissue.[1] The etiology is unknown; the manifestations and clinical course are varying and unpredictable. An even more rare form of this disease, primary pulmonary histiocytosis X, originates in the lung with the infiltration of large numbers of histiocytes. Contrary to the usual types of this disease, no evidence of progressive osseous or other visceral involvement occurs except for the probable involvement of the hypothalamic-hypophyseal systems.[2,4] There is no known reason for the male sex predilection of this form of the disease.[2,3]

CASE REPORT

A 31-year-old housewife was first seen on October 28, 1965, because of aching in the legs, present for over two months, which became more intense in late afternoon or at night. Associated were lancinating pains which started at the ankles and radiated up the legs. Two physicians had seen the patient previously for this difficulty and indicated that her leg distress was due to neuritis. There had been associated pain and stiffness of the lumbar spine and pain in the right shoulder. The patient had been treated with aspirin analgesia with some benefit. In addition her medications included an anovulatory drug, thyroid and meprobamate. There had been decreased hearing in the left ear since childhood. She had a cough productive of moderate amounts of pale yellow mucus. She smoked over a pack of cigarettes daily. She had nocturia one time and occasionally two times. Her past history was significant in that she had been seen at a prominent clinic in Texas at the age of nine years because of symptoms of polydipsia and polyuria suggestive of diabetes insipidus, for which she was treated with Pituitrin injections for a brief period. She was found to be mildly anemic at that time and again with her first pregnancy at the age of 19 years.

On physical examinations the blood pressure was 136/86. Small nodes were palpable in each posterior cervical chain. An occasional rhonchus was heard in the lungs. The soft organs were not palpable. The feet were cold though there were good pulsations in the posterior tibial and dorsalis pedis arteries.

The erythrocyte sedimentation rate was elevated to 47 and 38 mm per hour. The serum albumin was slightly decreased with small increases in alpha two globulin and beta globulin on serum protein electrophoresis. All other laboratory studies gave values in the range of normal and included complete blood count, urine analysis, ASO titer, alkaline phosphatase, SGOT, LDH, total cholesterol, fasting glucose, BUN, total protein and BMR. The serum sodium, potassium, chloride, calcium, phosphorus and plasma CO2 content were normal. The serology was nonreactive. Negative results were obtained on two LE preparations, rheumatoid arthritis agglutination, urine culture, blood culture, sputum and biopsy cultures for bacteria, acid-fast bacteria and fungus. Skin tests for tuberculosis, histoplasmosis and coccidioidomycosis were negative. The ECG showed sinus tachycardia but was otherwise normal.

The chest x-rays revealed diffuse infiltration and small calcifications in both lungs (Fig. 1). Lumbosacral spine films showed chronic reactive asymmetry and minimal chronic lumbosacral subluxation. Skull x-rays were negative. A chest x-ray taken six months previously by her personal physician was considered normal.

On the night of admission, the patient had severe left leg pain and the leg was noted to be warm and moist. The possibilities of erythromelalgia or reflux sympathetic dystrophy were considered. The acute pain subsided following aspirin

*From the Departments of Internal Medicine and Thoracic Surgery, Lovelace Clinic, Albuquerque, New Mexico.

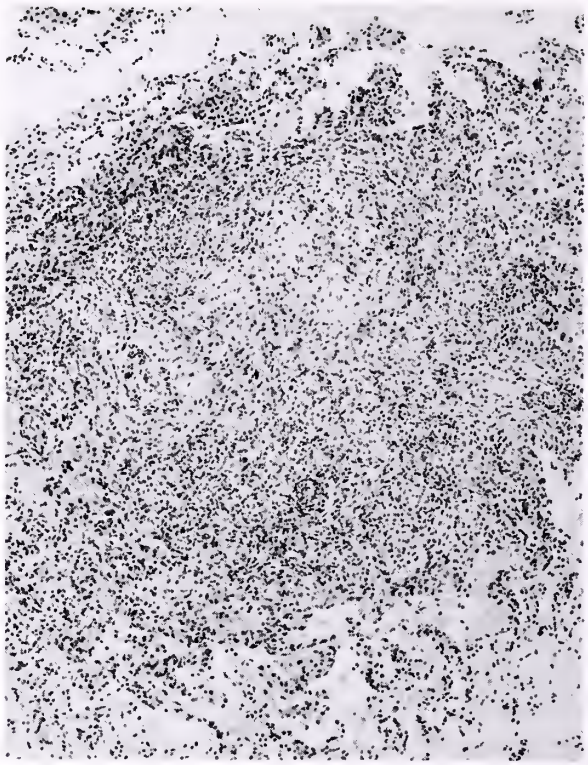
Fig. 1. X-ray of October, 1965. Shows chronic diffuse infiltration, with small calcifications. Slight convexity in region of pulmonary conus.

therapy. Studies in the peripheral vascular laboratory demonstrated vasodilation in both feet as indicated by a normal temperature increase following the administration of oral ethyl alcohol. The pain and aching in the lower extremities, which had been the patient's most significant complaint, disappeared during hospitalization and did not recur.

Evaluation of pulmonary function demonstrated significant decreases in vital capacity and diffusing capacity, while functional reserve capacity, residual volume and mixing efficiency were normal.

On November 4, 1965, open biopsy was performed on the right lower lobe. At operation, minute nodules of gravel consistency were noted throughout the lung. The pathologist reported multicentric histiocytosis with fibrous and granulomatous organization in several stages of development (Fig. 2).

The patient was given tetracycline (250 mg. q.i.d.) for six days postoperatively. Urine output was in excess of six liters on each of two days postoperatively. It returned to normal without specific therapy and was ascribed to polydipsia due to tension. At discharge she was urged to stop smoking and to avoid possible inhalant allergens. On six occasions in the months following surgery, she was given short courses of tetracycline therapy consisting of 250 mg. q.i.d. for five days for recurrent bronchial infections. In each case the respiratory infection symptoms subsided. She was treated with an anovulatory drug, hydroxyzine and multiple vitamins.



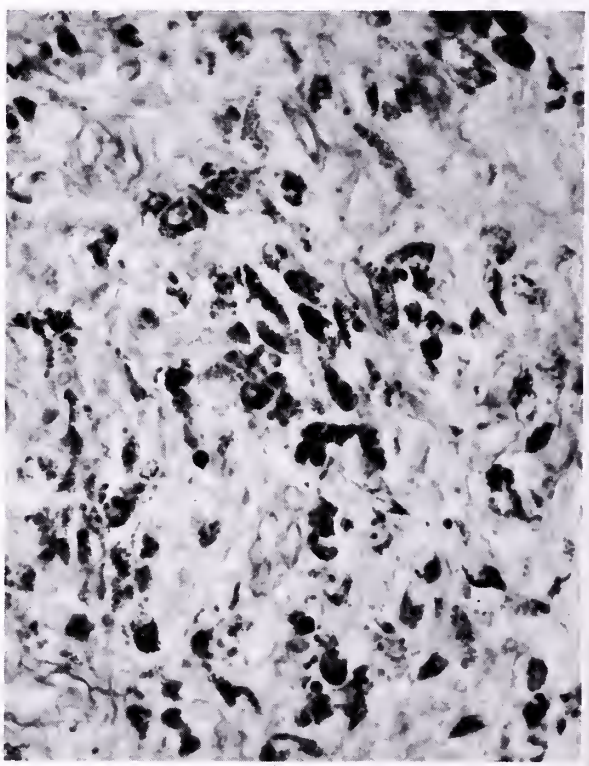


Fig. 2a. Photo micrograph of typical nodule (H. & E. 75x). 2b. Histiocytic reticular cells with PAS positive and iron positive cytoplasmic material (P. A. S. 370x).

TABLE 1
PULMONARY FUNCTION VALUES

	Vital Capacity (Predicted = 3.60)	Diffusion capacity at rest (Percentage of predicted in parentheses)
Nov. 2, 1965	2.78	11.0 (56%)
(Thoracotomy for biopsy performed Nov. 11, 1965)		
Feb. 12, 1966	2.94	12.6 (64%)
May 6, 1966	2.86	12.5 (63%)
Sept. 16, 1966	2.61	11.4 (58%)
Nov. 4, 1967	2.66	11.8 (60%)

Serial x-rays of the chest showed less infiltration, consistent with the patient's apparent clinical improvement (Fig. 3). Her pulmonary function data showed no significant change in diffusion capacity and vital capacity during 30 months of observation (Table 1). During this period the patient resumed smoking contrary to medical advice.

Discussion

The paradox of this patient's symptomatology related to the lower extremities with a pathologic-proved diagnosis of pulmonary histiocytosis X has not been resolved. There is not yet available any explanation which accounts for the frequently associated diabetes insipidus in patients with pulmonary histiocytosis X. In one patient who had pulmonary histiocytosis X complicated by diabetes insipidus, studied at necropsy, the lungs and hypothalamus were the only organs involved by the disease.[4] In the patients reported from the Mayo Clinic it appeared that the hypothalamic-hypophyseal system was secondarily involved since diabetes insipidus developed in three of seven patients (all males) after discovery of their pulmonary disease.[2] The female patient reported here had symptoms compatible with diabetes insipidus prior to onset of puberty, but subsequently she had polydipsia and polyuria only at times of increased stress. Whether the symptoms of aching and lancinating pain of the lower extremities which the patient had on admission were the result of invasion of another type of neural tissue, such as sympathetic ganglia or another area of the thalamus, can only be postulated.

There have been a few other reports of favorable results obtained with antibiotic therapy in patients with histiocytosis X.[5] Since the subject of this report has remained in good health, with no evidence of pneumothorax or right heart failure, which are the

Taste!

Dicarbosil®
ANTACID

Your ulcer patients and others will love it. Specify DICARBOSIL 144's—144 tablets in 12 rolls.

ARCH LABORATORIES
319 South Fourth Street, St. Louis, Missouri 63102

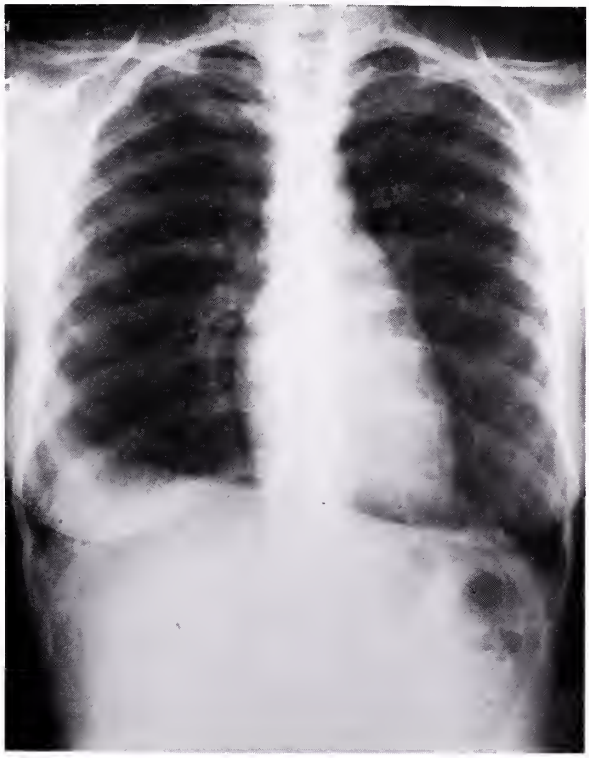


Fig. 3. X-ray of September, 1967. Slight diffuse prominence of reticular markings persists, but improvement is obvious.

other most common complications of primary pulmonary histiocytosis, therapy with steroids and vinblastine sulfate has not been considered.[6,7]

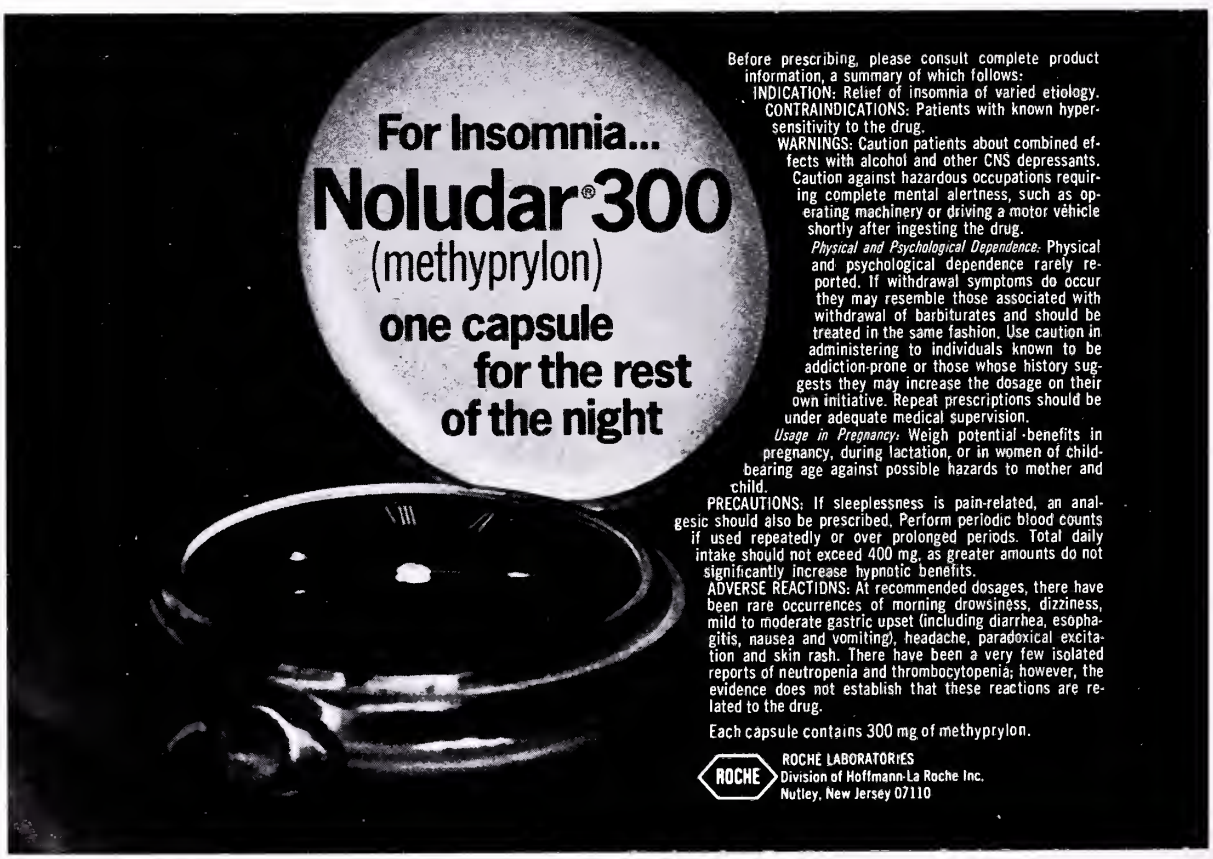
In primary pulmonary histiocytosis X and other similar types of diffuse lung disease, adequate lung biopsy is the only sure diagnostic procedure.[8] That tissue diagnosis must be established prior to therapy cannot be questioned, since diffuse lung diseases which appear clinically and radiologically similar may require quite different therapy. Frequently histiocytosis X can be diagnosed by cutaneous biopsy, but skin involvement is not present in primary pulmonary histiocytosis X.[9]

Summary

Primary pulmonary histiocytosis X is a rare type of reticuloendotheliosis which is found about four times as frequently in men as in women. The female patient, reported here, at the age of nine years had symptoms suggestive of diabetes insipidus (a cardinal manifestation of this disease), but the diagnosis of histiocytosis X was not established until lung biopsy was done 22 years later. Her presenting symptomatology and apparent response to tetracycline therapy were interesting aspects of this rare disease. •

REFERENCES

1 Enriquez, P., Dahlin, D. C., Hayles, A. B., and Henderson, E. D.: Histiocytosis X: A Clinical Study, Mayo Clin. Proc., 42:88, 1967.
2 Nadeau, P. J., Ellis, F. H., Harrison, E. G., Jr., and Fontana, R. S.: Primary Pulmonary Histiocytosis X, Dis. Chest, 37:325, 1960.
3 Lewis, J. G.: Eosinophilic Granuloma and its Variants with Special Reference to Lung Involvement, Quart. J. Med., 33:337, 1964.
4 Spillane, J. D.: Four Cases of Diabetes Insipidus and Pulmonary Disease, Thorax, 7:134, 1952.
5 Bierman, H. R.: Apparent Cure of Letterer-Siwe Disease, J.A.M.A., 196:368, 1966.
6 Siegal, J. S., and Coltman, C. A.: Histiocytosis X: Response to Vinblastine Sulfate, J.A.M.A., 197:403, 1966.
7 Tennant, F. S.: Vinblastine for Adult Histiocytosis X (letter to the editor), J.A.M.A., 210:2284, 1969.
8 Shortland, J. R., Darke, C. S., and Crane, W. A. J.: Electron Microscopy of Desquamative Interstitial Pneumonia, Thorax, 24:192, 1969.
9 Winkelmann, R. K.: The Skin in Histiocytosis X, Mayo Clin. Proc., 44:535, 1969.


For Insomnia...
Noludar® 300
(methyprylon)
one capsule
for the rest
of the night
Before prescribing, please consult complete product information, a summary of which follows:
INDICATION: Relief of insomnia of varied etiology.
CONTRAINDICATIONS: Patients with known hypersensitivity to the drug.
WARNINGS: Caution patients about combined effects with alcohol and other CNS depressants. Caution against hazardous occupations requiring complete mental alertness, such as operating machinery or driving a motor vehicle shortly after ingesting the drug.
Physical and Psychological Dependence: Physical and psychological dependence rarely reported. If withdrawal symptoms do occur they may resemble those associated with withdrawal of barbiturates and should be treated in the same fashion. Use caution in administering to individuals known to be addiction-prone or those whose history suggests they may increase the dosage on their own initiative. Repeat prescriptions should be under adequate medical supervision.
Usage in Pregnancy: Weigh potential benefits in pregnancy, during lactation, or in women of childbearing age against possible hazards to mother and child.
PRECAUTIONS: If sleeplessness is pain-related, an analgesic should also be prescribed. Perform periodic blood counts if used repeatedly or over prolonged periods. Total daily intake should not exceed 400 mg, as greater amounts do not significantly increase hypnotic benefits.
ADVERSE REACTIONS: At recommended dosages, there have been rare occurrences of morning drowsiness, dizziness, mild to moderate gastric upset (including diarrhea, esophagitis, nausea and vomiting), headache, paradoxical excitation and skin rash. There have been a very few isolated reports of neutropenia and thrombocytopenia; however, the evidence does not establish that these reactions are related to the drug.
Each capsule contains 300 mg of methyprylon.
ROCHE
ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

Tattoos of heroin addicts in New Mexico*

David A. Bennahum, MD, Albuquerque, N.M.

Here is a fascinating analysis of the relation of the tattoo to drug addiction in the oldest cultural setting in America—perhaps helpful in understanding the addict.

TATTOOS ARE COMMONLY found on heroin addicts throughout the United States. The psychologic implications of tattooing have long been a subject of interest for physicians. The Italian criminologist of the nineteenth century, Cesare Lombroso, was among the first to note the frequency of tattoos among criminals.[1] Francisco Martinez Baca reported in 1899 on the frequency and type of tattoos found on prisoners in a Mexican penitentiary.[2] Sir William Osler equated the presence of a tattoo with the probability of associated venereal disease.[3]

It is of interest that surveys done during World War II indicated that 65 per cent of enlisted men of United States Navy and 25 per cent of enlisted Army personnel were or became tattooed while in the military service.[4] Correlations have often been sought between psychiatric instability and the presence of tattoos on prisoners or men examined and tested during military service.[5] One such study indicated that the rejection rate was 50 per cent greater in tattooed inductees than in those without tattoos.[6] Another study, however, indicated that tattooed submariners performed equally as well as their unmarked comrades.[7]

J.D. Sapira has written that a small cross tattooed between the thumb and first finger on either hand serves as a badge of honor and an identification symbol for addicts in many parts of the country.[8] In the 1940's, the members of the teenage "Pachuco gangs" of California and the Southwest used this identification symbol in the form of a triradiate cross. It was from these gangs that many of the heroin users of the 1950's were to come.

Tattoos are frequently placed in the antecubital fossae to disguise the overused and sclerosed veins of needle tracks. One frequently sees other small tattoos—names, hearts, and small crosses—on the arms and chests of young men seeking to enhance their self image.[9,10] In New Mexico, however, we have noted a remarkable pattern of tattooing which represents, in elaborate detail, religious images alternating with wild beasts and promiscuous figures. Set in the context of Spanish-American life, in this the oldest colonized part of the United States, this may reflect the imagery of traditional Spanish folk culture.

Albuquerque, New Mexico, has a population of only 300,000, and yet the Narcotic Rehabilitation Program staff estimate that there are over 2,500 heroin abusers. As of December, 1970, there were 530 men and women in the rehabilitation program. Eighty-eight per cent were men and 12 per cent women. Of the men, 86 per cent were Spanish-American, 13 per cent were white, one patient was black, and one was an American Indian. Of the women, 59 per cent were Spanish-American, 41 per cent were white. Each patient had had a physical examination by one of four internists. It is only among Spanish-American patients in this program that this peculiar pattern of tattooing has been noted by the examining physicians.

*From the Department of Medicine, University of New Mexico School of Medicine, Albuquerque, New Mexico. The author is Instructor in Medicine, Consultant to the Narcotic Addict Rehabilitation Program.
Supported in part by the National Institutes of Mental Health—IND 6485.

The appended photographs are representative of the most commonly seen tattoos. A few of the more discrete patterns may be acquired in adolescence but the majority, particularly the elaborate ones, are acquired in prison. The tattoos are executed by the prisoners on each other using printer's ink and pins. Men convicted and sentenced to prison in New Mexico are usually sent to one of three institutions—the State Penitentiary in Santa Fe, the Federal prison at Leavenworth, Kansas, or the Federal prison at La Tuna, Texas. In prison it is forbidden to apply tattoos. To become tattooed in prison, therefore, is to confront prison authorities and to assert one's identity.

Presented here are two representative photographs from our collection. The most common tattoo is that of a name or a word, usually a girl's name, Ma or Mom (Fig. 1). Next in frequency are floral designs, especially roses. The rose is the flower of the Virgin of Guadalupe and is used to represent her (Fig. 1). Next in frequency are nudes (Fig. 1). The nudes are often placed on the posterior shoulders and may surround large representations of the Madonna. She is characteristically enveloped in the star-filled cloak of the Virgin of Guadalupe (Fig. 2). Less commonly, but done in exquisite detail, we have seen the head of Christ, a suffering, mortified Christ crowned with thorns.

Fig. 1. Typical figures—a word, rose, nude, spiders.

Fig. 2. Another typical case—a Christ figure or patron saint, virgin.

On three patients we have noted spiders (Fig. 1), both the tarantula and the Black Widow. The image of a spider's web is also seen on occasion. In two of the photographs we see skeletons—one as a marionette and one cloaked in a monk's habit and bearing a dagger-like syringe and a dead monkey. We note the figure of a butterfly and also that of the pure or "proper girl" often in pigtails and a sombrero. Snakes are common, as are tigers or panthers with gaping jaws. We have frequently seen salacious designs of female torsos and snakes, or women and leering male faces (Fig. 1). Crudely executed pornographic tattoos are reproduced in Baca's work on Mexican prisoners. Hamburger and Lacovara, working in California, have a very similar photograph to the male face and female figure in Fig. 1, 2, 4. One wonders whether the latter was on a Mexican-American.

In effect we can see in these photographs of heroin addicts an extraordinary imagery which has not to our knowledge been noted

Fig. 3

elsewhere. Why does the imprisoned Spanish-American addict choose these images? What does this choice tell us of the culture from which the addict comes, of the psychology of addiction in New Mexican Americans, and of the sub-culture of addiction which he creates?

An analysis of these images suggests several patterns. There is first the practical explanation of tattoos placed on the forearms and antecubital fossae to disguise sclerosed veins. The second is the explanation of Mexican nationalism. In prison the addict identifies with that which will help his ego to survive. The Virgin of Guadalupe is the patron Saint of Mexico. Through prison the Spanish-American of Northern New Mexico may discover associations with Mexican-Americans which he may adopt, much as the Black in prison may join the Black Muslims. Addicts state that for them the rose, the Virgin, and the stars symbolize Spanish-American nationalism.

The arrangement of the figures, however, is pertinent. A Madonna surrounded by nudes suggests the Madonna-prostitute complex. This psychiatric concept suggests that an individual who sees his mother as a perfect Madonna-like figure is unable to view any other women in any light other than as either perfect or imperfect. Therefore, all other women aside from his mother and perhaps his wife are seen as prostitutes. This at its worst interferes with the normal transference by the man of the relationship for his mother to his wife, and has been known to interfere with normal sexual behavior in males. I believe that this type tattoo is a vivid and graphic representation of this psychologic complex.

The third group of images are those of Christ and of the cross. They are remarkable for their medieval quality and closely resemble the wooden carvings of the Christ and Saints, the Santos, which are a traditional folk art in Northern New Mexico. The graphic quality of the thorns and the image presented of the suffering Christ might be interpreted in two ways. The tattooed addicts explain their choice as a representation of their own suffering. It is pertinent, however, that New Mexico has long had a cult of flagellants, the "Penitentes.[11] With the early New Mexican settlers of the seventeenth century came Franciscan Fathers, and the "Penitentes" are thought to be a Franciscan lay order which fulfilled the function of the church during the century and a half from 1700 to 1850 when the province was largely abandoned by Spain.[12] The "Penitentes" are remarkable for the severe penances which they place upon themselves, including in the

Fig. 4

past the actual crucifixion of one of their own members each year.[13] The Catholicism of New Mexico is thus very much identified with the crucified Christ. The Spanish-American heroin addict like all Northern New Mexican Catholics is strongly influenced by the "Penitente" cult. His Catholicism is concrete and personal, and thus his choice of religious images in his own suffering in prison makes graphic these images of the suffering Christ.

The skeleton as a marionette and the skeleton in monk's habit are traditional symbols of the "Penitente" cult. During Holy Week the "Penitente" Brothers will draw an ox cart (La Careta de Muerto) full of stones with a cloaked figure of death riding in back holding a bow and arrow. Another figure shows a cloaked skeleton stabbing a dying or dead monkey with a hypodermic syringe; this is an all too graphic association of addiction and death in the "Penitente" context.

There are other images equally fascinating but whose origin is less clear. Butterflies are common in pre-Columbian and modern Mexican folk art. The spiders are difficult to explain, although the paralytic poison of the Black Widow may represent the poison of heroin. The tarantula suggests a folk memory of the "Tarantella", or the Dance of Death, which was so common during the plagues of Medieval Europe. Perhaps a comparison can be drawn between the plagues of the Middle Ages and the epidemic of drug addiction today.

As a final tragic note in this insect imagery, addicts have told this writer that the spider's web becomes for the addict-prisoner a symbol of his own entrapment, a modern anti-hero caught in a hopeless maze. The imprisoned addict deprived of his opiate must bear the full thrust of his fantasy life. Unable to repress the fearful imagery of his unconscious world, he thus tattoos upon himself mirror images of these hidden forces in the form of wild tigers, salacious figures of snakes and female bodies, and women and frightening male faces. Consciously he asserts, by the use of more traditional symbols, his identification with the edifying virtues of la raza, his race, his people.

We believe that in these fascinating and often strikingly executed tattoos aspects of the culture of addiction are apparent in Spanish-American addicts. A better understanding of the nature and the richness of this culture, as well as the role it plays for the addict, may help explain both the root causes of his addiction and the failure of prevention and rehabilitation of the heroin addict when attempted outside his own subculture.

Summary

New Mexico has a large heroin addiction problem. Addicts of Spanish-American origin as distinct from other addicts frequently carry vivid tattoos, usually acquired in prison. The finding of multiple lurid tattoos on a patient may suggest that he is an addict. The graphic images selected by these patients reflect many of the traditional symbols of the religious and folk art of Northern New Mexicans. One also sees symbols of an emerging Mexican-American nationalism, of the sexual fantasies of imprisoned men, and of the feeling of entrapment of the addict harnessed by his drug habit. These tattoos may reflect significant aspects of the sub-culture of addiction as seen in the Spanish-Americans of New Mexico. •

REFERENCES

[1] Lombroso, C.: L'Anthropologie Criminelle. Paris, Ancienne Librairie Germer Bailler et Cie, 1890.
[2] Baca, F. M.: Los Tatuages, Estudio Psicológico Y Médico-Legal. Mexico City, Tipografia de la Oficina Impresora, 1899.
[3] Osler, W.: Modern Medicine. Its Theory and Practice, Volume III. Philadelphia, Lea Brothers Co., 1907.
[4] Hamburger, E., and Lacovara, D. J.: A study of tattoos in inmates of a federal correctional institution. Military Med. 128:1205, 1963.
[5] Gittleson, N. L., Wallen, G. D. P., and Dawson-Butterworth, K.: The tattooed psychiatric patient. Brit. J. Psych. 115:1249, 1969.
[6] Lander, J., and Kohn, R. M.: A note on tattooing among selectees. Am. J. Psych. 100:326, 1943.
[7] Earls, J. H.: Tattooed sailors: some sociopsychological correlates. Military Med. 132:48, 1967.
[8] Sapira, J. D.: The narcotic addict as a medical patient. Am. J. Med. 45:555, 1968.
[9] Yamamoto, J., Seeman, W., and Lester, B. K.: The tattooed man. J. Nerv. and Ment. Dis. 136:365, 1963.
[10] Parry, A.: Tattooing among prostitutes and perverts. Psychoanalytic Quart. 3:476, 1934.
[11] Weigle, M.: The Penitentes of the Southwest. Santa Fe, Ancient City Press, 1970.
[12] Flagellants. Encyclopaedia Britannica, Volume 9, 1953, pp. 349.
[13] Lummis, C. F.: The Penitente Brothers, in The Land of Poco Tiempo. Albuquerque, University of New Mexico Press, 1966.

CAMPBELL'S SOUPS IN DIABETIC DIETS*

RECOMMENDATIONS FOR PLACING CAMPBELL'S SOUPS* INTO EXCHANGE LISTS

* These recommendations are based on a *one cup portion* when prepared according to directions on the label. If milk is used in the preparation, use part of your daily requirement.

Exchange Substitution for 1 Bread and ½ Fat	Exchange Substitution for 1 Meat and 1½ Bread
Tomato	Hot Dog Bean
Tomato, Bisque of	Split Pea with Ham
Tomato Rice, Old Fashioned	
Exchange Substitution for ½ Bread and ½ Fat	**Exchange Substitution for ¼ Meat and ½ Bread**
Asparagus, Cream of	Chicken Gumbo
	Chicken Noodle

Campbell's Soups are appetizing and enjoyable and, because of the many varieties available, offer your diabetic patients the opportunity to plan and enjoy more interesting and appealing meals.

*To obtain copies of "Recommendations for Placing Campbell's Soups Into Exchange Lists," suitable for distribution to patients, write to Campbell Soup Company, Dept. 300, Campbell Place, Camden, N.J. 08101.

There's a soup for almost every patient and diet ..for every meal and, it's made by Campbell

COLORADO

CWRMP Names Deputy Program Director

Dr. Robert C. Jones, head of the Colorado-Wyoming Regional Medical Program (CWRMP) cardiovascular disease division since August 1969, has been appointed deputy director of the two-state health agency.

Dr. Jones, a cardiologist who has traveled extensively throughout Colorado and Wyoming to present training programs in heart disease diagnosis and treatment to regional physicians and nurses, will continue his professional education activities.

An assistant professor of medicine at the University of Colorado Medical Center, Dr. Jones is a member of the Colorado Heart Association, the American Medical Association and the American Heart Association.

MONTANA

Physicians in the News

J. Alton Ross, MD, Great Falls, was named president of the Montana Academy of General Practice at its recent meeting in West Yellowstone. **Edward L. King, MD,** Manhattan, was named president-elect, and **Robert R. Whiting, MD,** Hardin, vice president and program chairman. **R. D. Buchanan, MD,** Columbia Falls, was re-elected secretary-treasurer.

Bob E. Hulit, MD, Billings, was recently elected vice-chairman of the Montana Section of the American College of Obstetrics and Gynecology.

Richard D. Welch, MD, who was engaged in the private practice of pediatrics in Salinas, California, for a number of years, was recently named acting director of the Division of Child Health Services of the Montana State Department of Health.

Alexander C. Johnson, MD, Great Falls, assumed the office of president of the Rocky Mountain Neurosurgical Society at its 1971 annual meeting in Colorado Springs.

Bridger P. Little, MD, Glasgow, has been appointed by Governor Forrest H. Anderson to serve as a member of the Montana State Board of Health for a seven-year term. Doctor Little will succeed **Robert D. Knapp, MD,** Wolf Point, whose term expired June 30, 1971. His contributions to the achievements of the State Board of Health have been positive and effective.

OBITUARIES

Colorado

Jason L. Blevins, MD, Denver physician, died July 24, 1971 at the age of 67.

Doctor Blevins was born January 13, 1904 in Richmond, Kentucky. He received his M.D. Degree from Hahnemann Medical College, Philadelphia, Pennsylvania in 1931, and was licensed to practice medicine in Colorado in 1935. He was married to Lucy Belle Mitchell in 1935.

During World War II Doctor Blevins served with the United States Army Medical Corps in the China-Burma-India areas, and was also stationed at the U. S. Army Hospital at Fort Carson. He was a member of American Legion Post 1, the American Medical Association, the American Academy of General Practice, the Geriatrics Society and the Colorado Medical Society.

Surviving in addition to his widow are a daughter, Mrs. Bettye B. Patrick of Littleton; a brother, William of Maysville, California and three grandchildren.

BROADMOOR yourselves

for the pure pleasure of it all!

Discover America's finest resort facilities, dining and accommodations, here within 5,000 acres of enjoyment at the gateway to the Colorado Rockies.

The BROADMOOR Colorado Springs, Colorado

Tax-free Cash!

Here's great news about a Disability Income Plan that can pay you up to $1,000.00 a month in TAX-FREE CASH when you're sick or hurt and can't work.

This remarkable plan is offered to you at a special savings as a member of the Colorado Medical Society. It is underwritten by Mutual of Omaha, the leader in its field.

You choose the coverage best suited to your requirements from among 34 different plans — each one tailored to meet a special need.

This is the kind of protection every doctor should have. So send today for full details. Complete and mail the coupon below today.

Mutual of Omaha®
The Company that pays

Life Insurance Affiliate: United of Omaha
Mutual of Omaha Insurance Company
Home office: Omaha, Nebraska

Colorado Division Office
2nd Floor, Railway Exchange Bldg.
Denver, Clorado 80202

Please rush me full details on the Colorado Medical Society's Disability Income Protection Plan.

Name.....

Address.....

City.....State.....Zip.....

3-6-9-12-71

THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

Atlas of Human Anatomy: By Luis Lopez-Antunez. Philadelphia, 1971, Saunders. 366 p. Price: $18.50.

Chemical Influences on Behavior: By Ciba Foundation. London, 1970, Churchill. 221 p. Price: Gift.

Clinical Examinations in Neurology: By Mayo Clinic. 3rd ed. Philadelphia, 1971, Saunders. 350 p. Price: $12.50.

Dynamics of Violence: Edited by Jan Fawcett. Chicago, Ill., 1971, American Medical Association. 198 p. Price: $3.95.

Emergency Care and Transportation of the Sick and Injured: By American Academy of Orthopaedic Surgeons. Chicago, 1971, American Academy Orthop. Surgeons. 304 p. Price: $4.95.

Energy Metabolism in Trauma: By Ciba Foundation. London, 1970, Churchill. 202 p. Price: Gift.

The Family and Its Future: By Ciba Foundation. London, 1970, Churchill. 235 p. Price: Gift.

Guides to the Evaluation of Permanent Impairment: By American Medical Assoc. Chicago, 1970, AMA. 164 p. Price: Review.

The Hand: By Lee Milford. St. Louis, 1971, Mosby. 282 p. Price: Review.

Handbook of Psychiatric Consultation: By John J. Schwab. New York, 1968, Appleton. 318 p. Price: Gift.

Hormones and the Immune Response: By Ciba Foundation. London, 1970, Churchill. 172 p. Price: Gift.

Hypertrophic Obstructive Cardiomyopathy: By Ciba Foundation. London, 1971, Churchill. 220 p. Price: Gift.

Inquiries in Psychiatry: By Aubrey Lewis. New York, 1967, Science House. 335 p. Price: Gift.

Learning Medical Terminology Step by Step: By Clara Gene Young and James D. Barger. 2nd ed. St. Louis, 1971, Mosby. 325 p. Price: $8.90.

Low Fat Low Cholesterol Diet: By Clara Beth Y. Bond. New York, 1971, Doubleday. 512 p. Price: $7.95.

Manual of Clinical Mycology: By Norman F. Conant and others. Philadelphia, 1971, Saunders. 755 p. Price: $13.50.

Medical Parasitology: By J. Walter Beck and Elizabeth Barrett-Connor. St. Louis, 1971, Mosby. 210 p. Price: Review.

Medical Specialty Terminology: By Clara Gene Young and James D. Barger. St. Louis, 1971, Mosby. 251 p. Price: $8.50.

Medical Problems and the Law: By Kent Louis Brown. Springfield, Ill., 1971, Thomas. 280 p. Price: Review.

My Life and Medicine: By Paul Dudley White. Boston, 1971, Gambit. 269 p. Price: $6.95.

Normality, Theoretical and Clinical Concepts of Mental Health: By Daniel Offer and Melvin Sabshin. New York, 1966, Basic Books. 253 p. Price: Gift.

Pathology of Sickle Cell Disease: By Joseph Song. Springfield, Ill., 1971, Thomas. 400 p. Price: Review.

Physiology of Reproduction: By William D. Odell and Dean L. Moyer. St. Louis, 1971, Mosby. 152 p. Price: Review.

The Pineal Gland: By Ciba Foundation. London, 1971, Churchill. 401 p. Price: Gift.

Plastic Surgery in Infancy and Childhood: By John C. Mustarde. Philadelphia, 1971, Saunders. 581 p. Price: $22.00.

Psychiatry, Education and the Young Adult: By Dana L. Farnsworth. Springfield, Ill., 1966, Thomas. 268 p. Price: Gift.

Psychological Types, v.6 (Collected Works of Jung): By Carl Gustave Jung. Princeton, N. J., 1971, Princeton University Press. 617 p. Price: $15.00.

Psychoneurosis and Schizophrenia: Edited by Gene L. Usdin. Philadelphia, 1966, Lippincott. 192 p. Price: Gift.

Pyrogens and Fever: By Ciba Foundation: London, 1971, Churchill. 232 p. Price: Gift.

The Secretory Immunologic System: By U.S. Dept. HEW. Washington, D. C., 1971, HEW. 544 p. Price: $5.25.

Respiratory Function in Disease: By David V. Bates and others. Philadelphia, 1971, Saunders. 584 p. Price: $20.00.

Sjogren's Syndrome, v.2 (Major Problems in Internal Medicine): By Martin A. Shearn. Philadelphia, 1971, Saunders. 262. p. Price: Not Set.

Speech Pathology, An Applied Behavioral Science: By William H. Perkins. St. Louis, 1971, Mosby. 449 p. Price: $11.75.

The State of Psychiatry, Essays and Addresses: By Sir Aubrey Lewis. New York, 1967, Science House. 310 p. Price: Gift.

Stock Market Primer: By Claude N. Rosenberg. New York, 1970, Paperback Library. 346 p. Price: $1.25.

Structure and Support of Contemporary Residency Programs in Surgery: Edited by Harold G. Barker. Springfield, Ill., 1971, Thomas. 290 p. Price: Review.

Surgery Annual v. 2: Edited by Philip Cooper and Lloyd M. Nyhus. New York, 1970, Appleton-Century-Crofts. 352 p. Price: $15.00

Teamwork For World Health: By Ciba Foundation. London, 1971, Churchill. 242 p. Price: Gift.

Temperament and Behavior Disorders in Children: By Alexander Thomas and others. New York, 1968, New York University Press. 309 p. Price: Gift.

Trauma to the Liver, v. 3 (Major Problems in Clinical Surgery): By Gordon F. Madding and Paul A. Kennedy. 2nd ed. Philadelphia, 1971, Saunders. 186 p. Price: $8.55.

Urology—From Antiquity to the 20th Century: By Leonard P. Wershub. St. Louis, 1970, Warren H. Green, Inc. 308 p. Price: $15.50.

World Biennial of Psychiatry and Psychotherapy, v.1: Edited by Silvano Arieti. New York, 1971, Basic Books. 622 p. Price: $20.00.

Our most important job is serving you. That's why we call ourselves

Public Service Company of Colorado
an investor-owned utility

MEDICAL SCHOOL NOTES

University of New Mexico School of Medicine

Three professors from the University of New Mexico, Robert A. Senescu, Sidney Solomon and Alvin Howard, have been chosen Outstanding Educators of America for 1971. They will be featured in a national awards volume, "Outstanding Educators of America."

Dr. Senescu is chairman of the Department of Psychiatry at the University of New Mexico School of Medicine. He holds an A.B. from Columbia University, and received his M.D. from Boston University Medical School.

Dr. Solomon holds a B.S. in chemistry from University of Massachusetts and a Ph.D. in physiology from University of Chicago. He was named chairman of the UNM School of Medicine physiology department in 1963.

An associate professor of secondary education, Dr. Howard holds a B.A. and a master's degree in education from Western Washington State College, a B.A. in economics from University of Washington, and a doctorate degree in education from University of Oregon.

* * * * *

Dr. Robert A. Munsick, professor and chairman of the Department of Obstetrics-Gynecology at the University of New Mexico School of Medicine, has been honored by the United States Pharmacopeia for his work on their advisory panel on gynecology, obstetrics and urology.

Dr. William M. Heller, executive director, said the selection of the best, established drugs has been the first feature of the USP revision process during its 150 years of operation.

Dr. Munsick is helping select drugs of medical merit and establishing pharmaceutical standards for them, which will be published in the next USP listing, due in 1974.

"This select list of the best, established drugs provides physicians everywhere with a guide to rational drug therapy. Moreover, the public standards and tests set for them by our nationwide network of volunteer pharmaceutical scientists form the basis for legal enforcement by the U.S. Food and Drug Administration," Dr. Heller said.

Other members of the Pharmacopeia include Dr. Charles T. Spalding, assistant professor of pharmacology at the medical school, and Dr. Kenneth H. Stahl, professor in the UNM College of Pharmacy.

Dr. Munsick joined the UNM medical faculty in 1965, after teaching in the Department of Obstetrics and Gynecology at the University of Colorado Medical Center.

The University of New Mexico Nutrition Planning Committee has received a $311,633 grant from the Office of Economic Opportunity to further develop a specific course of action to fight hunger and malnutrition. The new grant is for an additional two-year period.

One of the major items of the new grant is the establishment of a Clinical Nutrition Laboratory, which probably wil be housed in a remodeled building near the medical school. The lab also will be used for teaching support, research, and a workshop for students working on nutrition problems. Dr. David Law, professor of internal medicine at UNM has volunteered his time to medically evaluate nutrition in New Mexico.

Mass media—newspapers, radio and television —will be heavily used to help the public learn about good nutrition. The nutrition project in New Mexico is the only one in the nation using mass media in this way.

The project also will evaluate the state's food distribution program and its impact on household budgets. There also will be some professional education, helping medical students, dietitians and allied health personnel learn more about New Mexico's nutritional picture.

* * * * *

Doctors and other health workers scattered throughout New Mexico will now have immediate access to an extensive reference library without charge, because of a $100,000 grant to the University School of Medicine from the National Library of Medicine, a division of National Institutes of Health. The money, to be spread over a three year period, will provide full funding for the library referral service which was established by the New Mexico Regional Medical Program about two years ago.

The telephone service allows doctors, dentists, nurses, pharmacists and other health personnel to call toll-free to the Health Science Information Center at the medical school library in Albuquerque. Over the phone, they can request a variety of services, all of which will now be available at no charge.

For instance, a doctor in Grants may have a badly burned patient, and want information on the newest type of burn treatments. By dialing the toll-free number, he can listen to a six-minute tape on burn case, or on any of more than 300 other medical topics. At the end of the tape, it will give him the name of a doctor at the medical school or in nearby private practice who can give him more details. Through the phone facilities at the library, he can even be connected with the specialist and talk with him on the free line.

The UNM Library of the Medical Sciences is one of 11 resource libraries of the South Central Regional Medical Library Program, called TALON (because the cooperative library arrangement represents Texas, Arkansas, Louisiana, Oklahoma and New Mexico.) The TALON libraries are connected by teletypewriter and usually provide reference and bibliography service for each other within 48 hours.

More than half of the state's residents live in counties with no manned medical libraries available to the health professionals in their communities. Of the 75 hospitals in New Mexico, over two-thirds are too small to hire even half-time clerks to staff medical libraries in them. One of the services which has been offered by the UNM medical library has been sending a librarian out to work with these smaller hospitals, helping them develop their own reference libraries and explaining services available to them, free, from the UNM School of Medicine.

* * * * *

The internal medicine service at Espanola Hospital has been incorporated into the internal medicine service at the University of New Mexico School of Medicine, marking the first such cooperative agreement in the state.

Internal medicine residents—doctors who have graduated from a medical school have completed their internship training, and now are in their specialty residency training—will begin working in Espanola Sept. 1. Each doctor will spend six months at the hospital, then return to Albuquerque while another resident begins working at the Espanola facility.

Salaries of the residents will be paid by Espanola Hospital. Bernalillo County Medical Center, a primary teaching hospital for the medical school in Albuquerque, will provide professional liability insurance coverage while the doctors are assigned to the Espanola Hospital. Members of the full-time university internal medicine staff shall receive honorary privileges at Espanola Hospital, and may consult in difficult cases. The university staff also may participate in conferences held at the Espanola Hospital.

The resident will complete and dictate history, physical impressions and recommendations upon the patient's admission. He will write admitting and follow-up orders, make daily rounds, and check for the completeness of charts upon the patients' discharge. He will consult with the attending internist before initiating diagnostic and therapeutic measures. The Espanola Hospital has agreed to provide living quarters in Espanola for the resident and his family during their period of duty at the hospital.

* * * * *

Dr. Robert S. Stone, dean of the University of New Mexico School of Medicine, has been appointed to the advisory committee on undergradute medical education of the Americal Medical Association. Dr. Stone also is vice president for Health Sciences at UNM. His new duties on the AMA committee will include looking for important needs and problems in the training of young doctors, and recommending courses of action for the Council to follow. He also will serve as a review committee for the accreditation of existing and developing medical schools, and will advise the Council on any significant health legislation which might influence undergraduate medical education.

There are nine other members of the committee, including Dr. R. C. Derbyshire of the Board of Medical Examiners in Santa Fe.

Dr. Stone joined the UNM faculty in 1963 as professor and chairman of the pathology department. He was named dean of the school in 1968, and vice president for Health Sciences in 1970. Before coming to UNM, Dr. Stone was a member of the pathology department faculty in the School of Medicine at the University of California (Los Angeles) for 11 years.

* * * * *

Two new grants have been received by Dr. Gerald K. Weiss, an assistant professor in the Department of Physiology at the University of New Mexico School of Medicine. One grant, totaling $17,600 for a two year period, is from the American Heart Association. Another grant, for $62,273 for three years, is from the National Heart and Lung Institute of the U.S. Department of Health, Education and Welfare.

The Heart Association grant will be used to study a particular mechanism which may be one of the causes of high blood pressure, and the HEW grant will be used to study specific cell changes in the brain and how these changes are related to the central nervous control of blood pressure.

The UNM research project is designed to investigate, with electrophysiological techniques, a mechanism whereby higher areas of the brain could alter the information coming into the lower areas of the brain from special receptors in the blood vessels (baroreceptors), Dr. Weiss said. "Since the baroreceptors are vital in maintaining normal blood pressure," he said, "it is important to understand how the input from these receptors is regulated."

Dr. Kenneth G. Kastella, assistant professor of physiology, is co-investigator on the grant from HEW.

University of Colorado Medical Center

Dr. Henry K. Silver, professor of pediatrics in the University of Colorado School of Medicine, has been notified of his election as one of the first 100 members of the new Institute of Medicine of the National Academy of Sciences.

The institute was activated last December to bring together a group of distinguished leaders in the health professions for the purpose of guiding national policy in such matters as the providing of health care to the public, education for the health professions and sciences, and promotion of biomedical research and development.

Known nationally for his contributions to pediatric research and innovative approaches to the child-care manpower problem, Dr. Silver has been a member of the University of Colorado medical faculty since 1957. In pediatric and medical education circles he is known as the father of three new health professions—Child Health Associate, Pediatric Nurse Practitioner and School Nurse Practitioner—aimed at making health care available to more children.

Dr. Silver received his M.D. from the University of California School of Medicine in 1942 and before coming to Denver had served on the faculties there and at Yale University, where he was an associate professor of pediatrics from 1952 to 1957. He is consulting editor of the American Journal of Diseases of Children and a member of the Committee on Fetus and Newborn of the American Academy of Pediatrics.

Dr. Silver is co-author with Drs. C. Henry and Ruth S. Kempe, fellow members of the CU medical faculty, of a popular book on infant care, "Healthy Babies, Happy Parents," which has been re-published in British, Italian and German editions. He is also author of numerous contributions to the professional and research literature in pediatrics.

ARTIFICIAL EYES

Plastic eyes and glass eyes specially made to fit the most difficult cases. An expert eye-maker is in our office at all times to give your patients the satisfaction they must have. In business since 1906.

Write or phone for full details.

DENVER OPTIC COMPANY

330 University Bldg. • 16th and Champa • 825-0229
Denver, Colorado 80202

MEETINGS

Children's Hospital—Denver Continuing Education Department

WORKSHOP ON ANTIBIOTICS

October 8, 1971

CENTER FOR DISEASE CONTROL SYMPOSIUM ON NUTRITION

October 22, 1971

No fee. Registration limited.

BRISTOL SEMINAR ON PEDIATRICS INFECTION

December 10, 1971

University of Colorado School of Medicine Postgraduate Medical Education

HOSPITAL MEDICAL STAFF CONFERENCE

Estes Park, Colorado

September 27-October 1, 1971

HIGH RISK INFANT CARE (Limited)

October 4-8, 1971

OBSTETRICS AND GYNECOLOGY

October 11-13, 1971

ORAL CANCER SEMINAR

October 27, 1971

For further information and detailed programs, write to: The Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado.

Gastric Cytology Workshop

St. Joseph's Hospital, Denver

October 9-10, 1971

The Denver Society of Cytology in cooperation with the Colorado Division of the American Cancer Society will present this workshop.

Microscopes are required. Registration fee is $10.00 for cyto-technologists and $15.00 for pathologists and residents. For information and/or application blank, write or call Shirley Duncan, St. Joseph's Hospital Cytology Laboratory, 1835 Franklin Street, Denver, Colorado 80218. Phone 623-9455, ext. 2333.

CLINICAL REVIEWS

Mayo Clinic, Rochester, Minnesota

November 1-3 and November 8-10, 1971

Because of the large number attending in past years, the Staff of the Mayo Clinic and the Faculty of the Mayo Foundation are again presenting two identical sessions.

For further information, contact P. J. Osmundson, M.D., Chairman, Clinical Reviews Committee, Mayo Clinic, Rochester, Minnesota 55901.

Leukemia Society of America, Inc.

PROGRESS IN LEUKEMIA—SYMPOSIUM

Brown Palace Hotel, Denver

October 22, 1971

Open to all interested physicians.

For further information, contact Keppel Brierly, Executive Director, Metro Denver Chapter of the Leukemia Society of America, 601 Broadway, Denver, Colorado 80203. Telephone (303) 255-2814.

13th Annual Cancer Nursing Conference

Albany Hotel, Denver

October 9, 1971

The Colorado Division of the American Cancer Society, in cooperation with the Colorado Nurses' Association and the Colorado Department of Health will present this Conference, entitled "Inter-Disciplinary Approach To The Understanding and Treatment Of The Cancer Patient."

For further information, contact Mrs. Nancy C. Mogan, Conference Coordinator, 1764 Gilpin Street, Denver. Phone 388-4861.

18th Annual Scientific Assembly

ARIZONA ACADEMY OF GENERAL PRACTICE

Bahia Hotel, San Diego, California

October 20-23, 1971

Eight simultaneous sessions—three-day courses.

Courses include: EKG, GYN, ER Room trauma, Dermatology, Exam. of Openings, Psychiatry, Endocrinology, Medical Hypnosis.

Registrations limited.

For further information, contact Arizona Academy of General Practice, 3627 N. 60th St., Scottsdale, Arizona 85251.

3rd Annual Cerebral Funetion Symposium

HEMISPHERE DISCONNECTION AND CEREBRAL FUNCTION

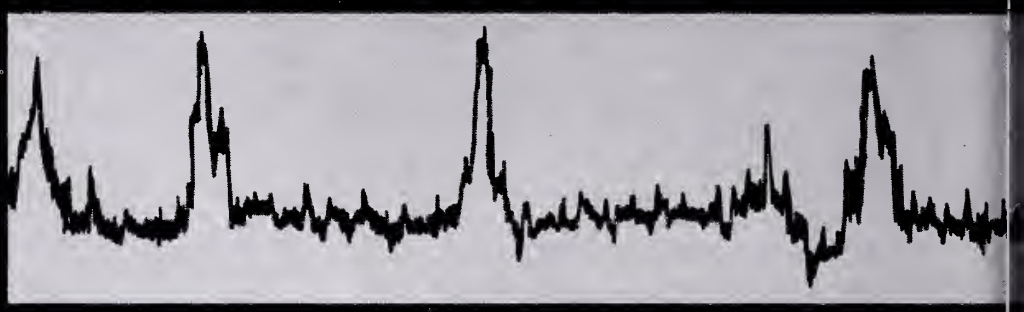
Hotel Del Coronado, Coronado, California

November 14-15, 1971

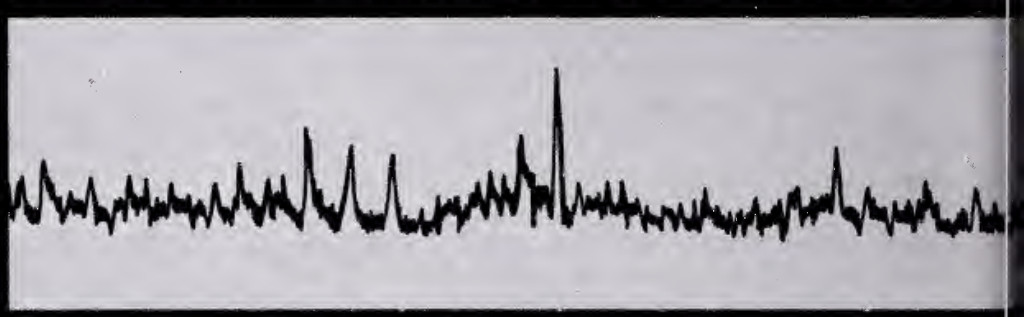
For further information, write: W. Lynn Smith, Ph.D., Chairman, Cortical Function Laboratory, Porter Memorial Hospital, 2525 S. Downing, Denver, Colorado 80210.

An intestinal autobiography of rage, contentment and horror*

"Feeling unfairly taxed by the government (Internal Revenue Service) and not given enough attention by A.U.O. [an experimenter to whom the subject became very attached], he became overtly critical and accusatory. He shouted, raged, and threatened to quit."*



"The motility that day was quiet. This type of recording is seen regularly when he is relaxed and contented and the laboratory seems peaceful."*



He was overwhelmed by "paralyzing horror" when told he would need a partial laryngectomy for removal of an early carcinoma; "...the activity of the ileum virtually ceased for over a five-minute period...."*

Background

*Data presented here derive from a 13-year ongoing study by Henry Harrison Sadler, M.D., and Aline Underhill Orten, Ph.D., at Wayne State University. Their findings, which demonstrate a correlation between the emotional state of a human subject and the motility of an isolated segment of his ileum, were published in the April, 1968, *American Journal of Psychiatry,* volume 124, page 1375.

The subject is a 56-year-old man with a 40-cr Thiry loop of ileum created as a result of emergency surgery. A person of modest attainment and simple tastes, the subject depends on the investigators as he might his own family. His full-time job is as a "human laboratory," and throughout the 13-year peri of the study, he has taken great personal pri in his own participation.

A story charged with emotion

The graphs on the facing page are intestinal motility readings on a human subject experiencing the emotions of rage, contentment and horror (see "Background" below left). This "intestinal autobiography" dramatizes the point that certain emotions correlate with specific patterns of G.I. motility.

The visceral clutch and functional G.I. disorders

The gut response to stress has been amply demonstrated in many functional G.I. disorders. Nervous diarrhea and irritable colon syndrome, for example, are disorders associated with abnormal G.I. motility. And these disorders are commonest among patients sensitive to life-stress situations productive of conflict and excessive anxiety.

Librax® calms anxiety, calms the gut

In these areas of G.I. pathology, Librax has become a mainstay of adjunctive therapy. Reason? Effective two-way calming action. Librax, by relieving excessive anxiety, not only helps calm emotional overreaction to stress, it controls intestinal hypermotility, too. Depend on Librax—the only drug that combines the well-known antianxiety action of Librium® (chlordiazepoxide HCl) and the potent, dependable antisecretory/antispasmodic action of Quarzan® (clidinium Br).

1 or 2 capsules, 3 or 4 times daily in the treatment of nervous diarrhea and irritable colon syndrome

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (e.g., excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances, syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

In functional G.I. disorders, adjunctive Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

calms anxiety, calms the G.I. tract

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

WANT ADS

MEDICAL SUITE FOR RENT in modern 3 man clinic. Fully furnished consultation room with 2 adjoining examining rooms. Includes use of 4 aides, fully equipped lab, physiotherapy room, X-ray room, EKG room, reception room and business office. Contact: Harold E. Gilman, M.D., 3405 Downing Street, Denver, Colorado (303) 623-6171. 771-3-4B

SEPARATE OFFICE SPACE available to Board Qualified internist. Retainer fee for assigned hours for coverage of emergency room. Staff privileges in adjacent hospital. Nevada Medical Properties, Inc., 1401 East Lake Mead Blvd., North Las Vegas, Nevada 89030. 671-5-4B

SEPARATE OFFICE SPACE available for general practitioner. Adjacent to hospital with staff opening. If desirous may supplement income by covering emergency room on assigned hours. Nevada Medical Properties, Inc., 1401 East Lake Mead Blvd., North Las Vegas, Nevada 89030. 671-3-4B

THE BRIGHTON, COLORADO AREA is growing rapidly and needs additional physicians. Internist, GP, ObGyn, Pediatrics, Orthopedics. Accredited hospital. 20 miles from Denver. Fine community for children. Contact F. C. Sage, Administrator, Brighton Community Hospital, Brighton, Colorado 80601. (303) 659-1531. 871-7-4B

GENERAL PRACTITIONER WANTED to join four man group in growing Western Nevada. Good hospital situation. Excellent remuneration including paid group insurance, malpractice insurance, retirement fund, vacation, and early partnership. Wide variety of year-round recreational facilities. Contact: Box 871-8-2, Rocky Mountain Medical Journal, 1809 E. 18th Avenue, Denver, Colorado 80218. 871-8-2

SEPARATE OFFICE SPACE available to Board Qualified orthopedic surgeon. Retain fee for assigned hours for coverage of emergency room. Staff privileges in adjacent hospital. Nevada Medical Properties, Inc., 1401 East Lake Mead Boulevard, North Las Vegas, Nevada 89030. 671-4-4B

COMPLETE OFFICE EQUIPMENT for Pediatric practice. Available for sale until November 1st. Contact John M. Nelson, M.D., 3705 E. Colfax Ave., Denver, 80206. Phone 322-7795. 971-4-1

PHYSICIAN—NEVADA offers clean air, unexcelled recreational facilities, rural living minutes from Reno, 4 hours from San Francisco. Welfare Medical Care Officer, civil service position, exceptional fringe benefits include regular hours. Call collect: Minor L. Kelso, Chief, Medical Services (702) 882-7581. 871-1-2B

VAIL CONDOMINIUM: Treat yourself and/or your out-of-town guests to a few days of luxury at summer rates that are comparable to motel prices. Sleeps 6 plus. Preferred rates given to local physicians. Call W. L. Reimers, M.D., 322-6174. 871-2-3B

NEAR LAKE GRANBY COLORADO—10 acres or more; stream, hay meadows, large aspen, pine. Close to ski areas. Sale and financing by owner. Ten per cent down. Phone (303) 466-2412. 871-3-3B

ORTHOPEDIC SURGEON—Take over active and well established practice now. Completely furnished office, including x-ray and P.T. May be used solo or two man association. Close to 5 major hospitals. Equipment negotiable. John E. Gardell, M.D., 1570 Humboldt, Denver, Colorado 80218 or call collect (303) 222-4821. 871-5-2

INTERNIST BOARD CERTIFIED or qualified for private practice in college town Northern Colorado—salary first year with partnership later with Board certified surgeon, and Board qualified internist. Please reply to Box 971-1-6, Rocky Mountain Medical Journal, 1809 East 18th Avenue, Denver, Colorado 80218. 971-1-6

A YOUNG BOARD CERTIFIED or Board Eligible Ob-Gyn, with military obligation completed, is wanted to join two Board certified fellows in Northern Colorado college community. Salary leading to full partnership. Send curriculum vitae. Contact: Nelson E. Bachus, M.D., Fort Collins Women's Clinic, 1080 East Elizabeth, Fort Collins, Colorado 80521. 971-2-1

WANTED: An Internist to join a 3 man staff in Internal Medicine Department for Chief of Medicine position. Very active small GM&S hospital with excellent consultants, educational opportunities and ample free time. Located in small picturesque Western city of 10,000. Salary $24,285 to $26,675 depending on qualifications. Non-discrimination in employment. Write or call Frank R. Mohs, M.D., Chief of Staff, VA Hospital, Miles City, Montana 59301. 971-3-3B

THE EMORY JOHN BRADY HOSPITAL

401 Southgate Road **COLORADO SPRINGS, COLORADO 80906** **MElrose 4-8828**

E. JAMES BRADY, M.D., *Medical Director*

CAMPBELL F. RICE, *Superintendent*

Francis A. O'Donnell, M.D.
Robert W. Davis, M.D.
Richard L. Conde. M.D.
Paul A. Draper, M.D.
Charles W. McClellan, M.D.
James E. Edwards, M.D.

For the care and treatment of Psychiatric disorders.

Individual and Group Psychotherapy and Somatic Therapies.

Occupational, diversional and outdoor activities.

X-ray, Clinical Laboratory and Electroencephalography.

INDEX TO ADVERTISERS

Arch Laboratories
Dicarbosil 61

Broadmoor Hotel 68

Burroughs Wellcome Company
Neosporin 4

Campbell Soup Company
Diabetic Diets 67

Colorado College of Medical and Dental Assistants 77

Denver Optic Company 72

Emory John Brady Hospital 76

Lederle Laboratories
Achrostatin V 52

Lilly, Eli & Company
Darvon Compound-65 14
V-Cillin K, Pediatric 24

McNeil Laboratories
Parafon Forte 11

Medicenter of America 23

Merck Sharp & Dohme
Elavil 12-13

Mutual of Omaha 69

National Drug Company
Tepanil 39
Quinamm 40

Newton Optical Company 77

Picker Medical Products 43

Practice Management Services 28

Public Service Company of Colorado 70

Publishers Press/
Monitor Publications 51

Robins, A. H. & Company
Robinul Forte 6-7
Donnatal 57
Allbee with C 58

Roche Laboratories
Efudex ..... Cover II, Page 1
Noludar 32, 62
Librax 74-75
Valium ..... Cover IV

Searle, G. D. & Company
Ovulen/Demulen ..... 78, Cover III

Skiland Corporation 3

Smith, Kline and French Laboratories
Thorazine 16

Squibb, E. R. and Sons, Inc.
Theragran 15

Stanford University Medical Center
Intensive Care 56

Stuart Pharmaceuticals
Div. of Atlas Chemical Industries, Inc.
Mylanta 10

Upjohn Company
E-Mycin 5

USV Pharmaceutical Co.
DBI-TD 8-9

Newton Optical Company

Catering to Medical Profession Patronage

309 16th Street
Denver 80202

GUILD Rx OPTICIANS

Telephone
534-8714

Graduate Medical Assistants

Available for placement now, seven-month intensive preparation, including one month internship in a doctor's office

We welcome your inquiries!

Contact Director of Placements at (303) 222-1526

Colorado College
of Medical and Dental Assistants
655 Broadway, Denver, Colorado

The Unwanted Child & Birth Control

Ten thousand battered children– a growing medical problem?

In his daily practice the physician witnesses the human suffering caused by uncontrolled fertility. Perhaps one of its most tragic effects is the unwanted child, who so often experiences parental rejection. The rejected child in a family may be neglected, nagged and severely punished. Sometimes he is criminally abused. Child abuse is common enough to have become a separate clinical entity: the "battered child" syndrome. Reliable statistics are difficult to obtain, but it has been estimated that in this country alone roughly 10,000 children are "battered" per year, and their number may be increasing.

A revealing picture of child abuse patterns is provided by one study of the American Humane Society. More than half of the 662 children involved (all reported in newspapers within a single year) were less than 4 years of age. One fourth of the battered youngsters died; most of these deaths were of children less than 2 years of age. Fathers were more often guilty of child abuse than mothers, but sometimes both parents participated. The study indicated that battered children are not limited to any particular socioeconomic stratum.

***For the complete brochure, and others in the series as they appear, please write to Searle or ask your Searle representative.** Explored in the forthcoming issues will be the history of birth control, the influence of poverty, ethnic factors and marital status, its role in illness, its genetic implications and its effects on the emotional and behavioral life of the individual.

Library
College of Physicians
19 South 22nd Street
Philadelphia, Pennsylva

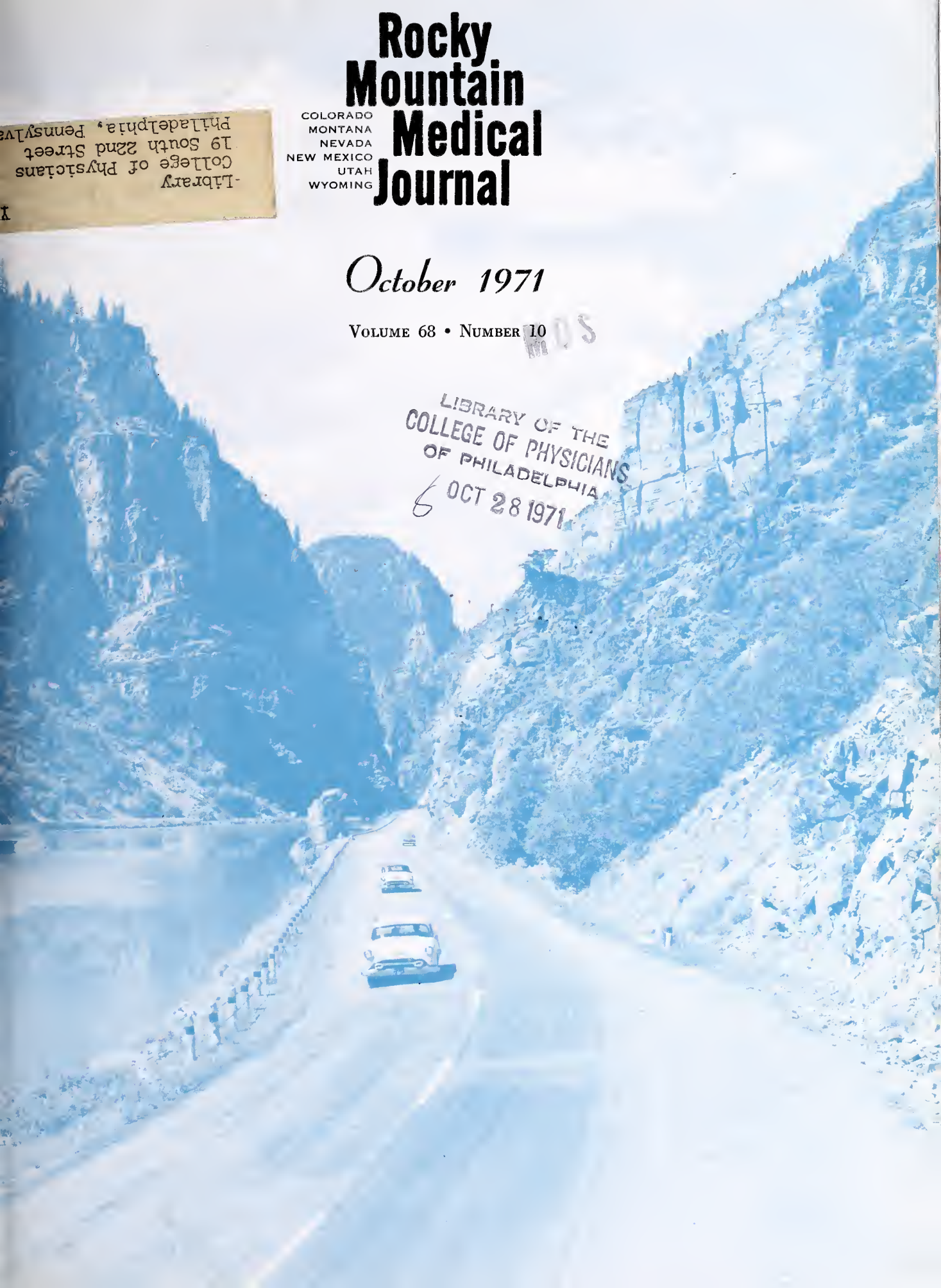
Rocky Mountain Medical Journal

COLORADO
MONTANA
NEVADA
NEW MEXICO
UTAH
WYOMING

October 1971

VOLUME 68 • NUMBER 10

LIBRARY OF THE
COLLEGE OF PHYSICIANS
OF PHILADELPHIA
OCT 28 1971



Call it what you will, it may be premalignant.

Before

3/29/67 Before therapy with 5%-FU cream. Patient P. T. shows a moderately severe solar keratotic involvement. Note residual scarring from the previous cryosurgical and electrosurgical procedures on forehead and ridge of nose adjacent to periauricular area.

After

6/12/67 Seven weeks after cessation of therapy. Reactions have subsided. Residual scarring is not seen except for that due to prior surgery. Inflammation has disappeared and face is clear of keratotic lesions.

ROCHE
Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

nd Efudex® (fluorouracil) 5% cream can resolve it.

lit actinic, solar or senile keratoses, ıı7 regard it as "precancerous."[1,2]

i l fluorouracil, considered by some dermatologists to be a major ːe in the treatment of multiple solar keratoses,[3,4] offers the physi- ı relatively inexpensive alternative to cryosurgery, electrodesic- (and cold knife surgery. Of the topical fluorouracils available, only (x offers 2% and 5% solution and 5% cream formulations—formula- ı hat have proved effective in the treatment of these mutliple lesions.

ıl duration of therapy, 2 to 4 weeks.

ds showed that with the 2% and 5% Efudex preparations, the usual ɔn of therapy was only 2 to 4 weeks.[5] Other studies with topical ıracil revealed that when concentrations of less than 2% were ignificant numbers of lesions recurred.[6]

ts the lesions you can't see, too.

ous lesions, not apparent prior to 2% and 5% Efudex therapy, sted themselves by definite reactions, while intervening skin ıed relatively unaffected.[5] The early eradication of these subclini- ions (which may otherwise have undergone further progression) ɔly accounts for the reduced incidence of future solar keratoses in ts treated with topical fluorouracil—especially with 5% trations.[6]

to identify solar keratoses.

.lly, the lesion—a flat or slightly elevated brown to red-brown —is dry, rough, adherent and sharply defined. Multiple lesions e rule.

ictable therapeutic response.

sponse to a typical course of Efudex therapy is usually teristic and predictable. After 3 or 4 days of treatment, erythema to appear in the area of keratoses. This is followed by a moderate ıse inflammatory response, scaling and occasionally moderate ness or pain. The height of this response generally occurs two after the start of therapy and then begins to subside as treatment ped. Within two weeks of discontinuing medication, the nation is usually gone. Lesions that do not respond should ɔsied.

es: 1. Allen, A. C.: *The Skin, A Clinicopathological Treatise*, ed. 2, New York, Stratton, 1967, p. 842. 2. Dillaha, C. J.; Jansen, G. T, and Honeycutt, W. M.: ent of Actinic Keratoses with Topical Fluorouracil," in Waisman, M. (ed.): *eutical Therapeutics in Dermatology*, Springfield, Ill., Charles C Thomas, 1968, Belisario, J. C.: *Cutis, 6*:293, 1970. 4. Sams, W. M.: *Arch. Derm., 97*:14, 1968. n file, Hoffmann-La Roche Inc., Nutley, New Jersey. 6. Williams, A. C., and : *Cancer, 25*:450, 1970.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

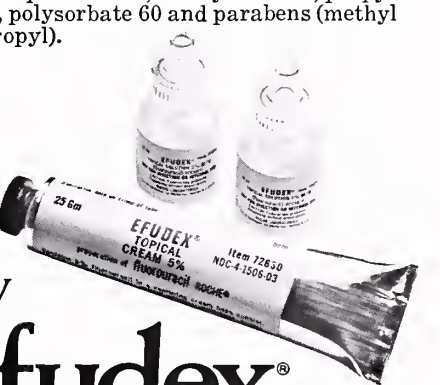
Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).



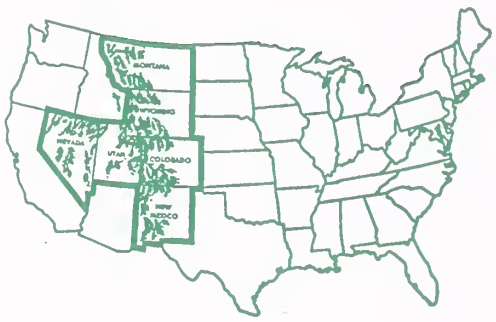
now
Efudex®
(fluorouracil)
cream/solution

ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

OCTOBER 1971

Volume 68, Number 10



Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222 (area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204

Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

Address all manuscripts, organization and other news items relating to editorial content to appropriate state editor, see below.

Editorials

21 BEWARE HOT WEATHER FOOTBALL PRACTICE

21 QUALITY OF EDUCATION

Articles

23 ECOLOGIC ILLNESS — *Lawrence D. Dickey, MD, Fort Collins, Colorado*

29 BACTERIAL ENDOCARDITIS ON A PROSTHETIC VALVE — *David P. Jahsman, MD and C. Basil Williams, MD, Ogden, Utah*

32 DOCTOR! WHEN SHOULD YOU RETIRE? — *Edgar W. Barber, MD, Denver, Colorado*

37 HOW SMOKING CAUSES LUNG CANCER — *Harvey S. Rusk, MD, Pueblo, Colorado*

40 LETHAL MIDLINE GRANULOMA — *James E. Jarrett, MD, Missoula, Montana and Roger H. Lehman, MD, Milwaukee, Wisconsin*

46 RUBELLA VACCINATION IN THE PUERPERIUM — *James J. Delaney, MD, Denver, Colorado*

49 DUPUYTREN'S CONTRACTURE — *Robert L. Horner, MD and Floyd Bralliar, MD, Denver, Colorado*

55 ANTICOAGULANTS IN ACUTE CORONARY DISEASE — *Herbert R. Brettell, MD, Denver, Colorado*

58 LUPUS ERYTHEMATOSUS — *Carl R. Kjeldsberg, MD, Denver, Colorado*

Organization

63 COLORADO—GENERAL HOSPITAL SERVICES OF THE COLORADO STATE HOSPITAL — *William E. Looby, MD, Pueblo, Colorado*

65 MONTANA

OUR COVER PHOTO

Colorado's well-maintained paved mountain highways unfold the spectacular scenery of granite-walled canyons paralleled by silvery trout streams and dotted with free campgrounds where wood, water and cooking facilities abound.

Courtesy — Colorado Department of Public Relations, Denver.

Features

67 OBITUARIES

68 MEDICAL SCHOOL NOTES

70 MEETINGS

76 WANT ADS

77 INDEX TO ADVERTISERS

EDITORIAL BOARD

Colorado: Douglas W. Macomber, M.D., Scientific Editor, 1800 High St., Denver (Chairman of the Board); Carl H. McLauthlin, M.D., Assistant Scientific Editor, 510 Republic Bldg., Denver.

Montana: Gerald A. Diettert, M.D., Scientific Editor, 501 W. Broadway, P. O. Box 1307, Missoula, Montana 59801; L. Russell Hegland, Associate Editor, 1236 North 28th Street, Billings.

Nevada: Harry J. McKinnon, M.D., Scientific Editor, 3196 Maryland Pkwy. S., Las Vegas; Wesley W. Hall, M.D., Assistant Scientific Editor, 607 N. Arlington Ave., Reno; Nelson B. Neff, Associate Editor, 3660 Baker Lane, Reno.

New Mexico: Marcus J. Smith, M.D., Scientific Editor, Coronado Bldg., Santa Fe; William S. Curran, M.D., Assistant Scientific Editor, 920 Stanford NE, Albuquerque; Ralph R. Marshall, Associate Editor, 3010 Monte Vista Blvd., NE, Albuquerque.

Utah: Alan E. Lindsay, M.D., Scientific Edit 699 East South Temple, Salt Lake City; Ho W. Brewster, Associate Editor, 42 South Fi East Street, Salt Lake City.

Wyoming: Francis A. Barrett, M.D., Scientif Editor, 1616 E. 19th St., Cheyenne; Robe Smith, Associate Editor, P. O. Box 1387, Che enne.

Donald G. Derry, Managing Editor

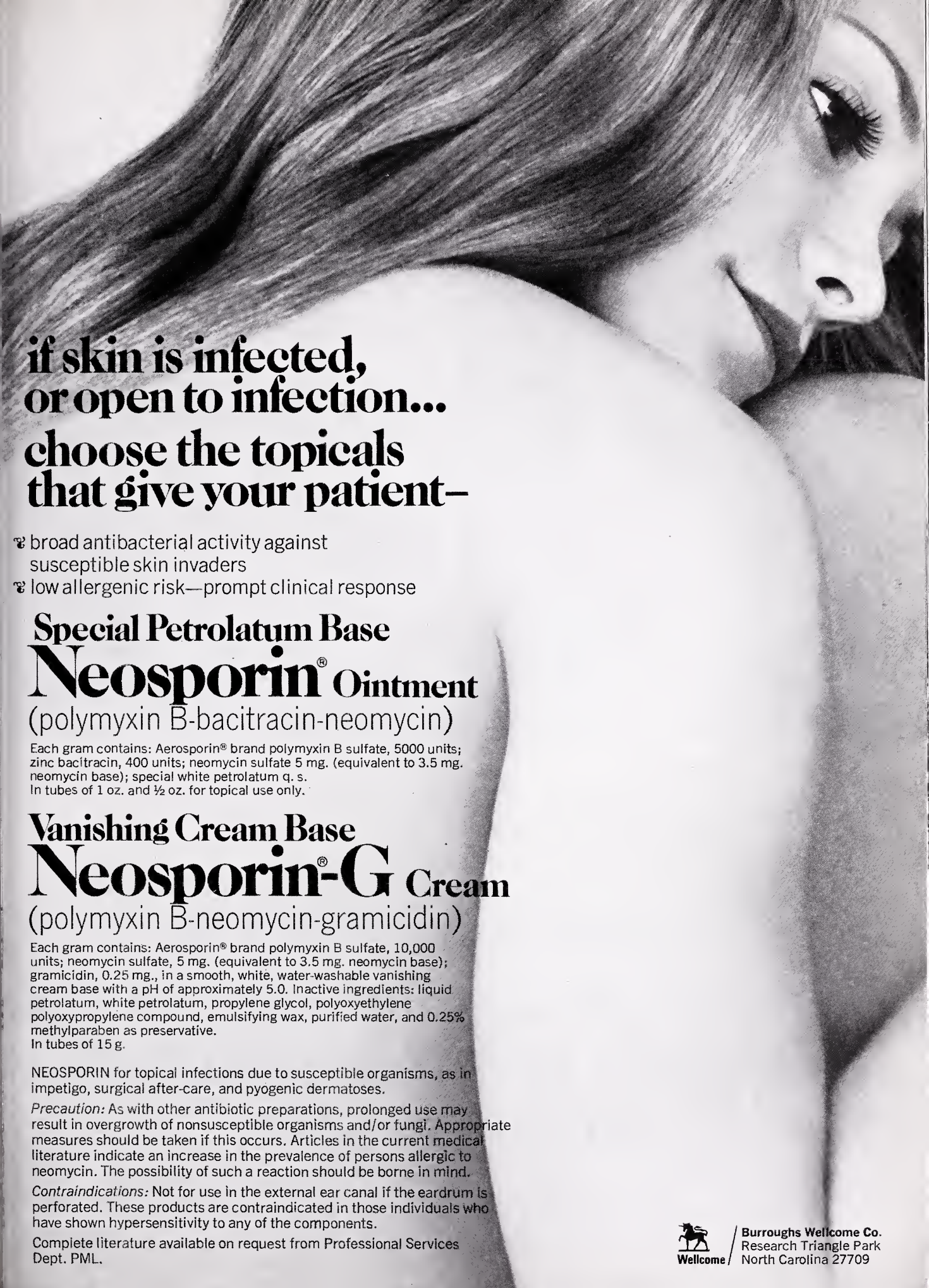
Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations: It is the Official Journal of the Rocky Mountain Medical Conference and those medical societies who are represented on the Editorial Board listed above.

Advertising: National representative: State Journals West, 693 Sutt Street, San Francisco, California 94102.

Subscription: $7.00 per year in advance, postpaid in the United Stat and its possessions; single copy 60c plus postage. Subscription is i cluded in medical society dues of sponsoring state medical organiz tions.

Copyright: This Journal is copyright, 1971, by the Colorado Medic Society. Requests for permission to reproduce anything from t columns of this Journal should be addressed to the Journal Offic

Second class postage paid at Denver, Colorado



if skin is infected, or open to infection...

choose the topicals that give your patient–

- broad antibacterial activity against susceptible skin invaders
- low allergenic risk—prompt clinical response

Special Petrolatum Base
Neosporin® Ointment
(polymyxin B-bacitracin-neomycin)

Each gram contains: Aerosporin® brand polymyxin B sulfate, 5000 units; zinc bacitracin, 400 units; neomycin sulfate 5 mg. (equivalent to 3.5 mg. neomycin base); special white petrolatum q. s.
In tubes of 1 oz. and ½ oz. for topical use only.

Vanishing Cream Base
Neosporin®-G Cream
(polymyxin B-neomycin-gramicidin)

Each gram contains: Aerosporin® brand polymyxin B sulfate, 10,000 units; neomycin sulfate, 5 mg. (equivalent to 3.5 mg. neomycin base); gramicidin, 0.25 mg., in a smooth, white, water-washable vanishing cream base with a pH of approximately 5.0. Inactive ingredients: liquid petrolatum, white petrolatum, propylene glycol, polyoxyethylene polyoxypropylene compound, emulsifying wax, purified water, and 0.25% methylparaben as preservative.
In tubes of 15 g.

NEOSPORIN for topical infections due to susceptible organisms, as in impetigo, surgical after-care, and pyogenic dermatoses.

Precaution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: Not for use in the external ear canal if the eardrum is perforated. These products are contraindicated in those individuals who have shown hypersensitivity to any of the components.

Complete literature available on request from Professional Services Dept. PML.

Wellcome / **Burroughs Wellcome Co.**
Research Triangle Park
North Carolina 27709

Change this word in your vocabulary and your patient will get an Upjohn product and a low price.

E-Mycin® available in 250 mg tablets.

JA71-1585
© 1971 The Upjohn Company

The Upjohn Company
Kalamazoo, Michigan 49001

Upjohn

Picture of low back pain

treated with Parafon Forte® TABLETS

Paraflex® (chlorzoxazone)* 250 mg.
Tylenol® (acetaminophen) 300 mg.

Parafon Forte tablets help to relieve pain, restore mobility... stop pain-spasm feedback

Here is why. PARAFON FORTE provides:

a nonsalicylate analgesic equal to aspirin for relief of pain,[1,2] yet unlikely to cause the gastric irritation[2,3] or increased bleeding time[4] associated with aspirin therapy.

and a skeletal muscle relaxant shown in extensive clinical studies to be useful in a variety of low back disorders[5-7] ...but which is not an antihistamine or tranquilizer derivative and is unlikely to produce a tranquilizing or sedative effect.[8]

Prescribe PARAFON FORTE for effective spasmolysis and analgesia in acute sprains, strains and myalgias of the lower back, including acute exacerbations of chronic conditions. Your patients will appreciate the restored comfort and freedom of movement it usually provides.

Contraindications: Sensitivity to either component. ***Warnings:*** *Usage in Pregnancy*—Use in woman of child-bearing potential only when potential benefits outweigh possible risks. ***Precautions:*** Exercise caution in patients with known allergies or history of drug allergies. If a sensitivity reaction or signs or symptoms suggestive of liver dysfunction are observed, the drug should be stopped. ***Adverse Reactions:*** Occasionally, drowsiness, dizziness, lightheadedness, malaise, overstimulation or gastrointestinal disturbances may be noted; rarely, allergic-type skin rashes, petechiae, ecchymoses, angioneurotic edema or anaphylactic reactions. In rare instances, *Paraflex* (chlorzoxazone) may possibly have been associated with gastrointestinal bleeding. While *Paraflex* (chlorzoxazone) and chlorzoxazone-containing products have been suspected as being the cause of hepatic toxicity in approximately eighteen patients, it was not possible to state that the dysfunction was or was not drug induced. ***Usual Adult Dosage:*** Two tablets q.i.d. ***Supplied:*** Scored, light green tablets, imprinted "McNEIL" —bottles of 100.

References: **1.** Batterman, R. C., and Grossman, A. J.: Fed. Proc. *14*:316, 1955. **2.** Goodman, L. S., and Gilman, A., ed.: The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970. **3.** Vickers, F. N.: Gastroint. Endosc. *14*:94, 1967. **4.** Mielke, C. H., Jr., and Britten, A. F. H.: New Engl. J. Med. *282*:1270, 1970 (Corresp.). **5.** Kestler, O. C., and Gyurik, J.: Industr. Med. Surg. *21*:372, 1962. **6.** Forster, S., et al.: Amer. J. Orthop. *2*:285, 1960. **7.** Data on file, McNeil Laboratories, Inc. **8.** Friend, D. G.: Clin. Pharmacol. Ther. *5*:871, 1964.

*U.S. PATENT NO. 2,895,877

McNEIL LABORATORIES, INC., FT. WASHINGTON, PA. 19034

McNEIL

now...

for the stable adult diabetic who needs higher doses of a reliable oral hypoglycemic...

new DBI®-TD 100 mg.

(phenformin HCl)

timed-disintegration capsules

- a higher dosage strength for use in the overweight, maturity-onset diabetic if diet alone fails
- a biguanide...not a sulfonylurea
- new dosage flexibility
- low patient cost

new DBI®-TD 100 mg.
(phenformin HCl)
timed-disintegration capsules

lowers elevated blood sugar

Secondary to its blood sugar lowering effect, DBI-TD probably decreases insulin oversecretion and thus may help reduce lipogenesis and facilitate lipolysis. This may account for the clinically reported reduction in weight and lowering of serum cholesterol levels in the overweight and hypercholesteremic diabetic patient.

usually well tolerated

Mainly gastrointestinal side effects may occur. However, as with many drugs, you should keep in mind that higher dosages may increase the incidence. Hypoglycemic reactions are rare when DBI-TD is used alone.

to prescribe DBI®-TD (phenformin HCl) if diet alone fails specify

DBI-TD 50 mg. for the newly diagnosed overweight, stable adult diabetic
DBI-TD 100 mg. for the overweight, adult-onset diabetic who needs higher doses of a reliable oral hypoglycemic

Indications: Stable adult diabetes mellitus; sulfonylurea failures, primary and secondary. **Contraindications:** Diabetes mellitus that can be regulated by diet alone; juvenile diabetes that is uncomplicated and well regulated on insulin; acute complications of diabetes (metabolic acidosis, coma, infection, gangrene); surgery; severe hepatic disease; renal disease with uremia; cardiovascular collapse, after disease states associated with hypoxemia. **Warning:** Use during pregnancy is to be avoided. Until adequate data on the effects of DBI on the human fetus are available, such use can be considered experimental. **Precautions: Starvation Ketosis,** which must be differentiated from "insulin lack" ketosis, and is characterized by ketonuria in spite of relatively normal blood and urine sugar, may result from excessive DBI therapy, excessive insulin reduction or insufficient carbohydrate intake. Adjustment of DBI-TD or insulin dosage, or supplying carbohydrates, alleviates this state. DO NOT GIVE INSULIN WITHOUT FIRST CHECKING BLOOD AND URINE SUGARS. **Lactic Acidosis:** DBI is not recommended in the presence of azotemia or in any clinical situation that predisposes to sustained hypotension that could lead to lactic acidosis. To differentiate lactic acidosis from ketoacidosis, it is recommended that periodic determinations of ketones in the blood and urine be made in diabetics previously stabilized on DBI, or DBI and insulin, who have become unstable. If electrolyte imbalance is suspected, periodic determinations should also be made of electrolytes, pH and the lactate-pyruvate ratio. DBI should be withdrawn and insulin, when required, and other corrective measures instituted immediately upon the appearance of any metabolic acidosis. **Hypoglycemia:** Although hypoglycemic reactions are rare when DBI is used alone, every precaution should be observed during the dosage adjustment period, particularly when insulin or a sulfonylurea has been given in combination with DBI. **Adverse Reactions:** Principally gastrointestinal, occurring more often at higher dosage levels; unpleasant metallic taste, continuing to anorexia, nausea and, less frequently, vomiting and diarrhea. Reduce dosage at first sign of these symptoms. In case of vomiting, DBI should be immediately withdrawn. Although rare, urticaria and gastrointestinal symptoms following excessive alcohol intake have been reported. **Dosage:** 25 mg.-300 mg. daily. **How Supplied:** 50 mg. timed-disintegration capsules, bottles of 100 and 1000; 100 mg. timed-disintegration capsules, bottles of 100 and 500. **Also Available:** DBI tablets 25 mg., bottles of 100 and 1000.

USV PHARMACEUTICAL CORP., Tuckahoe, New York 10707

USV

Still serving...

Miltown®
(meprobamate)

WALLACE PHARMACEUTICALS
Cranbury, N.J. 08512

LEUKEMIA RESEARCH GRANT APPLICATIONS

Applications to support scientific research in leukemia and related disorders are now being accepted by the Leukemia Society of America, Inc. Completed applications must be submitted before November 1, 1971 for review in late January. Approved grants will commence July 1, 1972.

Four types of programs are supported by the Leukemia Society of America, a national voluntary health agency. They are:

Scholar Program: five year grants totaling $100,000 for individuals who have demonstrated distinct ability in the investigation of leukemia and related disorders.

Special Fellow Program: two year awards in amounts up to $15,000 and $16,000 per annum for investigators who have demonstrated ability in research and who have become interested in working in the field of leukemia and related disorders. This program may be individualized in recognition of the need for support of a variety of individuals intermediate between the Fellow and Scholar Programs.

Fellow Program: two year awards of $9,000 and $10,000 per annum to promising younger investigators to encourage work in leukemia research.

Small Grant Programs: grants up to $3,000 are awarded in order to initiate new research programs. Grants are given only in exceptional circumstances.

Applicants need not be American citizens to qualify for any of the programs.

Since its founding in 1949, the Leukemia Society has funneled more than $5,275,000 to 241 investigators. Currently, there are 52 Society grantees working in the fields of virology, chemotherapy and the basic sciences.

Applications may be obtained by writing the Vice President for Medical and Scientific Affairs, Leukemia Society of America, Inc., 211 East 43rd Street, New York, New York 10017.

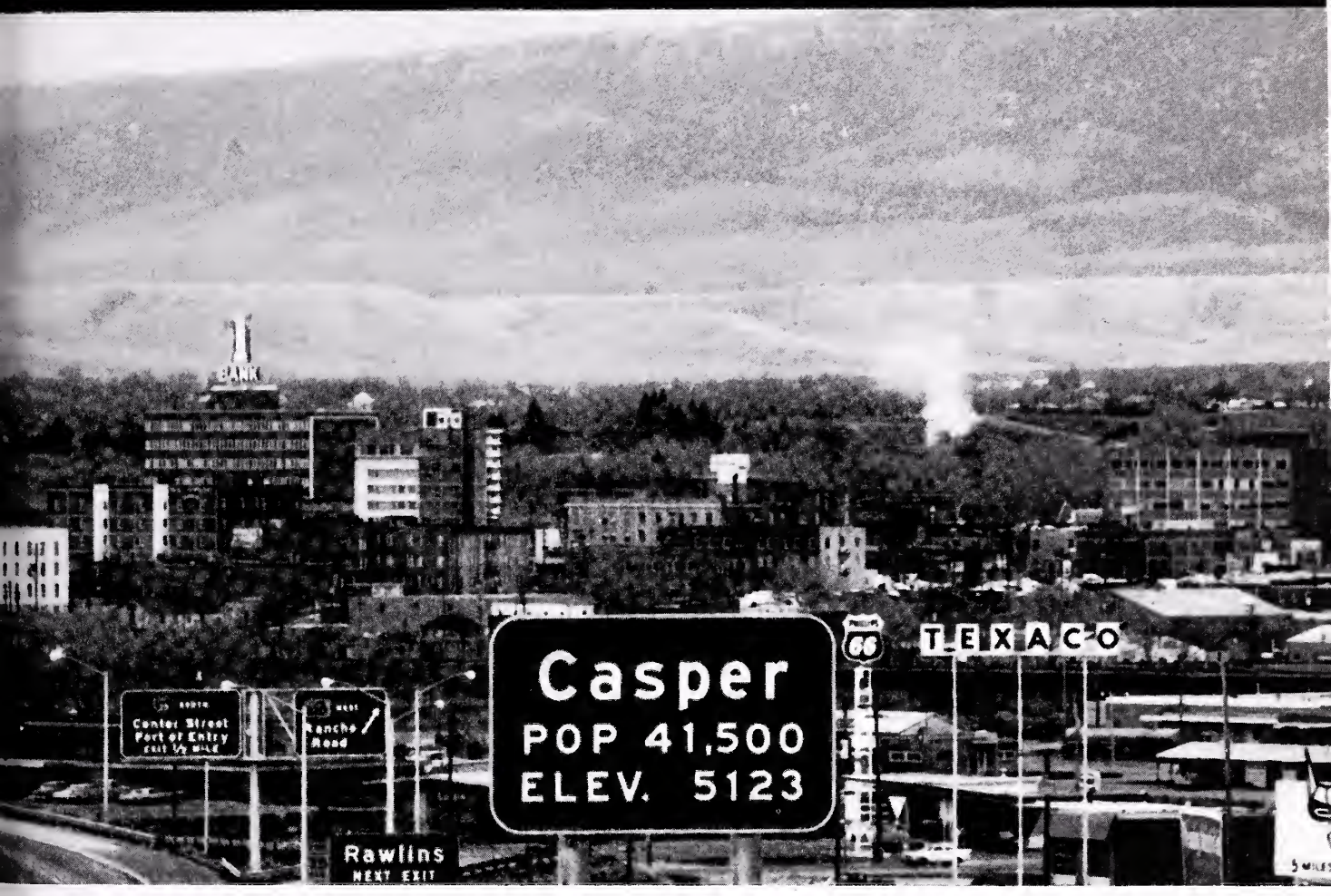
ARTIFICIAL EYES

Plastic eyes and glass eyes specially made to fit the most difficult cases. An expert eye-maker is in our office at all times to give your patients the satisfaction they must have. In business since 1906.
Write or phone for full details.

DENVER OPTIC COMPANY
330 University Bldg. • 16th and Champa • 825-0229
Denver, Colorado 80202

CASPER, WYOMING

Where Medical History Was Made



The story of how a community, against all reasonable odds and predictions, virtually eradicated a disease which had plagued its families for more than 50 years – rheumatic fever.

Here, in the great highland basin east of the Rockies, where sagebrush is as plentiful as sunshine, and antelope can be seen from your car window on an early morning, medical history has been quietly but surely written.

The story has its beginnings in 1954, when concerned Casper physicians confronted a serious problem head-on.

From five to fifteen cases of rheumatic fever were being reported yearly from a population of 28,000. *For reasons not wholly understood even today, the Rocky Mountain region was, and remains, a "strep belt."*

The program began modestly, with efforts focused on the public schools in Casper. The first step, and perhaps the least conventional: Hundreds of volunteer mothers were carefully trained in proper techniques for examining throats and taking cultures. Soon teams of mothers were reporting daily to classrooms.

According to Wyoming Health law, streptococcal pharyngitis

Photography: Archie Lieberman

See last page for brief summary. 109327

To the children of Casper, having your throat examined is as much a part of the school day as Roll Call and the Spelling Lesson.

is classified as a reportable and excludable disease. Under a ruling by the Wyoming Attorney General, exclusion was upheld for children with positive cultures.

To insure that the program could meet its long-range commitments, the citizens of Casper organized a community health fund, dubbed the Blue Envelope Fund. Local dollars were matched by federal money. Using this community fund, a streptococcal diagnostic laboratory was set up in the Natrona County Memorial Hospital. Gradually other schools in northern Wyoming were added to the Casper program.

Crest Hill Elementary School, near the base of Casper Mountain, is typical of schools in the Casper system. The kids, like kids everywhere, play or loaf while waiting for the bell to ring. When that happens, you're aware that something "special" is going on in Casper.

Every school morning, promptly at nine, one row of children from each classroom reports for throat examination. To the children of Casper, this is as much a part of the school day as Roll Call and the Spelling Lesson. Those children with inflamed throat or tonsils, or showing exudate or cervical lymphadenopathy, are swabbed. (Children with fever or symptoms of upper respiratory infection automatically report to the examining line.) Each child in the school is examined at least once a week; kindergarten children report twice a week.

Right: Casper children learn early about the objectives of the program. Here a kindergarten teacher is instructing her class on the importance of regular throat examinations.

Left: The program leans heavily on the work of some 400 volunteer mothers. Each school has its own team of mothers under the supervision of a chairman, who is also a volunteer. At the beginning of each school year, the new volunteers are taught how to examine a child's throat, what symptoms to look for, and how—delicately but surely—to swab.

The secret of Casper's remarkable achievement: a dedicated team of physicians, a full-time streptococcal diagnostic laboratory —and more than 400 volunteer mothers.

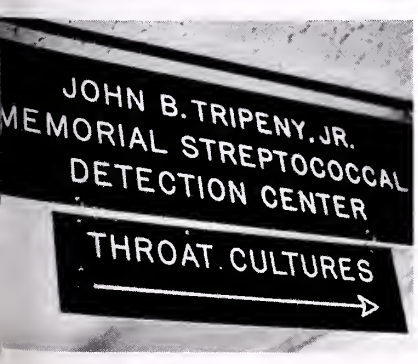
Few could have imagined the result today: *In more than four years, not one case of rheumatic fever has been reported among the 14,000 school children in Natrona county.*

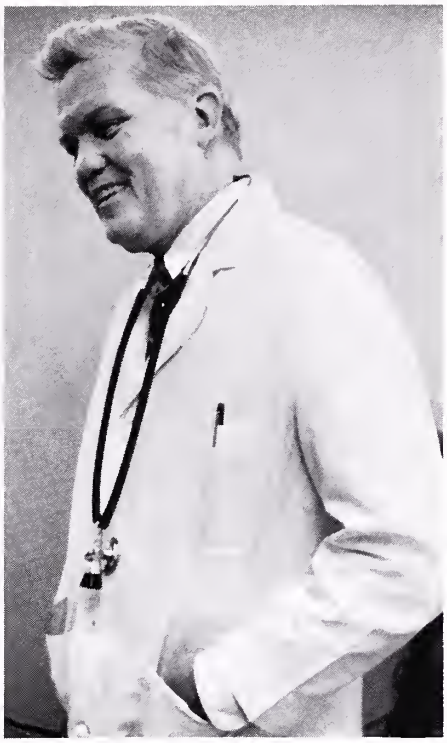
The United States Public Health Service "Strep" team, surveying Casper schoolchildren, found 1.8% positive for strep, in contrast to the usual levels of 15 to 30% found by the same team in uncontrolled communities throughout the regions.[1]

How was this record brought about? Can the lessons of Casper be applied elsewhere?

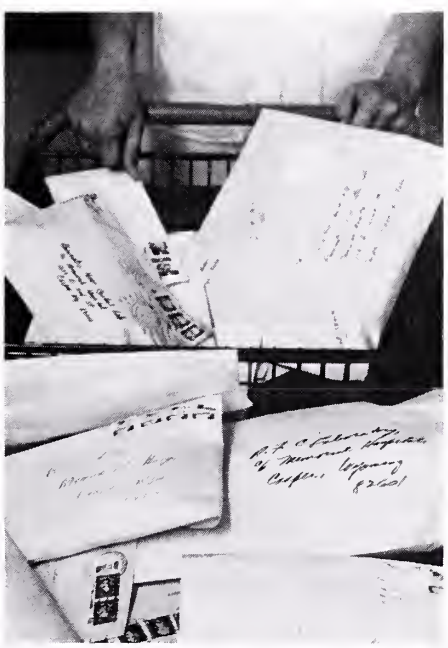
The pictures shown here will give you some idea of how the people of Casper have worked

[1] Phibbs, B., Taylor, J., and Zimmerman, ., A Community-Wide Streptococcal Control Project, J.A.M.A., Vol. 214, No. 11, ec. 14, 1970.



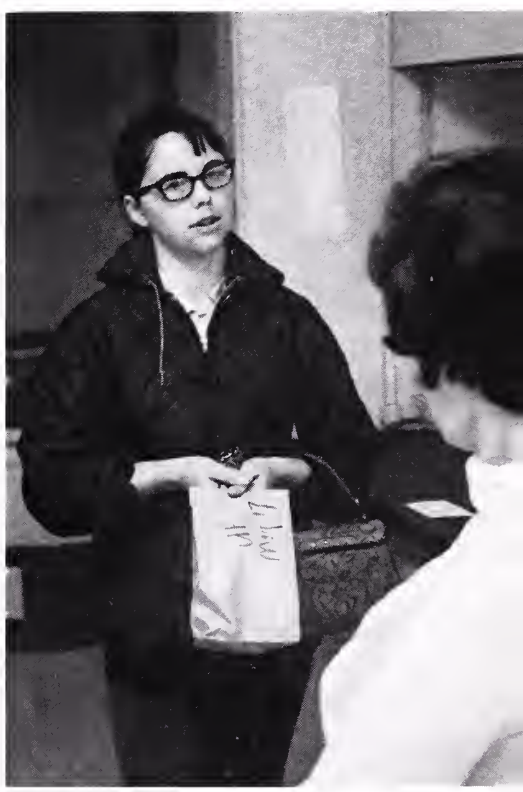


Brendan Phibbs, M.D.—specialty, cardiology—came to Casper 20 years ago with his wife and family. An avid sportsman, he was at home at once. In 1954, he began talking rheumatic fever control, and he's been talking about it ever since. He quickly found other Casper physicians ready to join him in building a community-wide school-and-clinic program.



Tuesday is a busier day than usual in the laboratory. On that day, the mail starts bringing in swabs from the outlying areas in northern Wyoming. The laboratory processes cultures from such towns as Shoshoni, Lusk, Sheridan—and as far away as Jackson, more than 300 miles from Casper.

The Rheumatic Fever Control Laboratory is the nerve center of the program. Located in the Natrona County Memorial Hospital, the laboratory is operated by four technicians under the supervision of JoAnne Taylor, R.N. Mrs. Taylor, shown at the microscope, has played a major role in the success of the program.



The volunteer mothers' work doesn't end with the throat examination. Whatever swabs have been taken must be delivered to the laboratory that morning. And the mother has the responsibility of seeing that the swabs get to the lab regardless of the weather. (Some mothers have 30 or more miles to drive—no bargain on an icy day.)

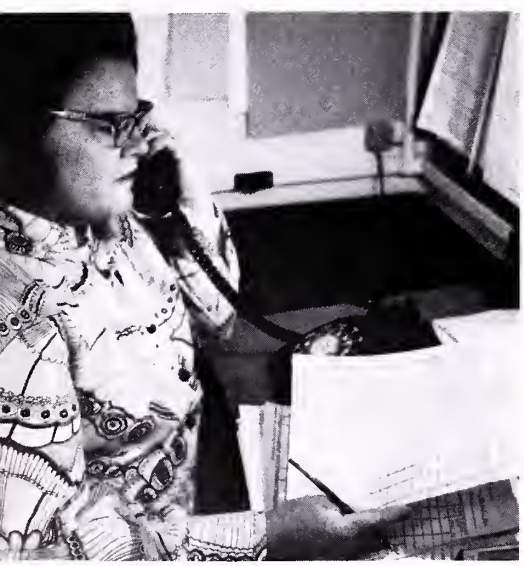
See last page for brief summary.

All cultures are free to the patient. Cost per culture to the program–thanks to community funding–a remarkable 20¢!

together to produce—and preserve—this remarkable achievement.

Also, as an addendum to the picture story, you will see how, in carefully controlled studies in Casper, Erythrocin (erythromycin, Abbott) was compared directly with orally administered penicillin in treatment of children showing positive cultures of group A beta hemolytic streptococci. Because of the importance of a safe alternative to penicillin, the results are worth noting.

All pictures are of actual Casper schools, scenes, lab and treatment sites; no models were used. ■



A member of the lab calls each school with names of children showing positive cultures.

A technician (foreground) inoculates the medium while her associate records the information for each culture. On a given day, from 1200 to 1500 agar plates will be streaked and coded.

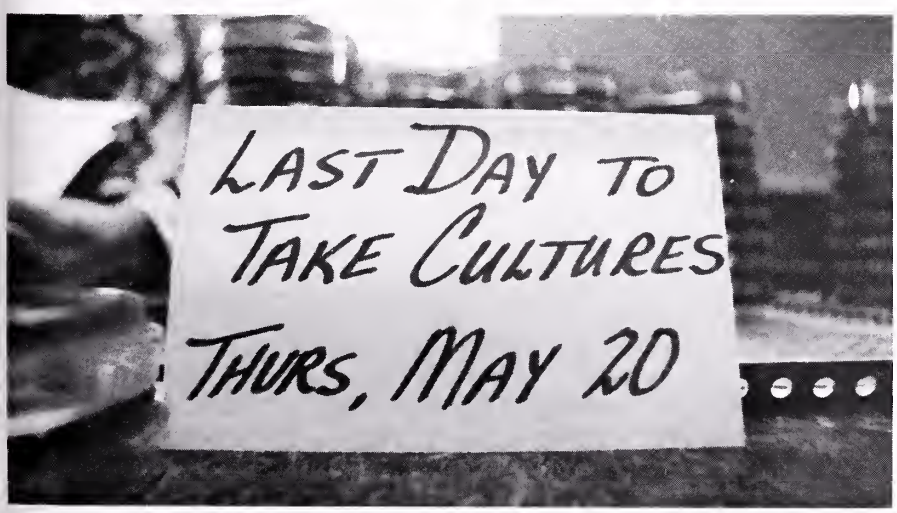
Identification of each positive culture is made within 24 hours. In a peak month (usually March), as many as 27,000 cultures may be processed. All cultures are free to the patient. Cost per culture to the program—thanks to community funding—a remarkable 20¢!

See last page for brief summary.

Once a child shows a positive culture, he is sent home with a slip requesting immediate treatment. If he gets treatment that day, he is free to return to school the following morning.

The child is not readmitted to school until the slip is signed by a physician certifying that the child has been given treatment.

When your throat is "sunburned", as one little boy put it, the treatment is not always undiluted fun. Unless the child is allergic to penicillin, Casper physicians usually specify long-acting benzathine penicillin G. This boy (above) was hamming it up for the photographer when the nurse was preparing to give the shot. In the lower picture, the "shot" clearly has found its mark. Once the treatment is administered or oral therapy started, the child is free to return to school the following morning.



Thursday, May 20, 1971—last day in the school year when cultures could be taken. The record for 1970-71: Another year without a case of rheumatic fever. Of 159,632 cultures processed, only 7,423 (4.6%) were positive. Now the laboratory is locked and mothers and workers relax—until the following September, when the whole thing starts again.

The record: Not one case of rheumatic fever reported among Natrona county's 14,000 schoolchildren in more than four years.

Next page: Report on a study comparing treatment with oral forms of penicillin and Erythrocin (erythromycin).

Addendum:

Report on a special study comparing oral Erythrocin®
(ERYTHROMYCIN, ABBOTT)
with oral penicillin in treatment of group A beta hemolytic streptococcal infections.

Pre-treatment physicals eliminated those children with pre-existing cardiac abnormalities. Sedimentation rate, ASO titer and urinalysis were performed in all subjects entering the study.

Study Design:

1. During the 1970-71 school year, 423 Casper children showing positive throat cultures for group A beta hemolytic streptococci were randomly assigned treatment with either oral Erythrocin® (stearate and ethylsuccinate) or oral penicillin (V and VK) for 10 days after initial examination.

2. All positive cultures were confirmed as group A by bacitracin sensitivity and fluorescent antibody staining.

3. Eradication of organism was verified by throat cultures taken two to six days after completion of treatment.

4. Children showing organism eradication were reexamined at 31 days with special attention to changes in: cardiac exam, sedimentation rate, antistreptolysin O titer and urinalysis.

Study Conclusions

During the 1970-71 school year, Erythrocin (erythromycin, Abbott) proved as effective as oral penicillin in eradicating the organism. No children developed rheumatic fever or glomerulonephritis and, most significantly, there was no difference in antibody response or sedimentation rate between the two treatment groups.

Eradication of Organism (Two to six days after completion of treatment)	Erythrocin No.	Erythrocin %	Oral Penicillin No.	Oral Penicillin %
Total rateable patients	211	100	212	100
Negative culture	199	94.3	203	95.8

(There is no significant difference between the treatment groups.)

Rheumatic Fever and Glomerulonephritis Indices	Erythrocin	Oral Penicillin
Patients rateable at 31 days (with organism eradication)	166	180
Acute rheumatic fever	None	None
Acute glomerulonephritis	None	None
Cardiac abnormalities	None	None

Laboratory Tests	Erythrocin Pre-treatment	Erythrocin At 31 days	Oral Penicillin Pre-treatment	Oral Penicillin At 31 days
Sedimentation rate (average)	16.3	9.4	17.1	9.0
ASO titer (average)	238.9	235.1	283.1	294.5
Urinalysis	No change		No change	

Analysis of covariance demonstrated no significant difference between the treatment groups.

ERYTHROCIN® ERYTHROMYCIN, ABBOTT

ABBOTT

Backed by years of clinical experience—plus an exceptional safety record

(See brief summary on next page.)

ERYTHROCIN® ERYTHROMYCIN, ABBOTT

DESCRIPTION—Erythrocin is the Abbott registered trademark for erythromycin. The stearate, ethylsuccinate, and base forms are used in various formulations.

INDICATIONS—Primarily, Erythrocin is indicated against gram-positive cocci—staphylococci (most strains), pneumococci, and streptococci (including enterococci). In addition, it is active against many other types of pathogenic microorganisms such as *Corynebacterium, Hemophilus, Clostridium, Neisseria, Treponema pallidum,* and the agents causing trachoma and lymphogranuloma venereum. Primary atypical pneumonia caused by *Mycoplasma pneumoniae* (Eaton agent) also has been successfully treated with Erythrocin.

As with other antimicrobial agents and whenever practical, it is advisable to establish the susceptibility of the infecting pathogen or pathogens prior to treatment.

In localized infections, antibiotic therapy does not obviate the need for local measures or surgery whenever these are indicated.

Erythrocin can be used for short-term prophylaxis of bacterial endocarditis prior to dental or other operative procedures in patients with a history of rheumatic fever or congenital heart disease. The product may be used also for continuous or long-term prophylaxis of streptococcal respiratory infections to help prevent the recurrence of rheumatic fever or rheumatic carditis in susceptible persons.

Erythrocin Ethyl Succinate Granules and Drops are intended primarily for pediatric use but are also suitable for use in adults.

CONTRAINDICATIONS — These preparations are contraindicated in patients with known hypersensitivity to erythromycin.

PRECAUTIONS—The rare possibility of superinfection caused by overgrowth of nonsusceptible bacteria or fungi should be kept in mind during prolonged or repeated therapy, especially when other antibacterial agents are simultaneously employed. In such instances the drug should be withdrawn and appropriate treatment instituted if necessary.

Suspensions of Erythrocin Ethyl Succinate Granules should be refrigerated after mixing and used within ten days.

If a patient should show signs of hypersensitivity, appropriate countermeasures (e.g., epinephrine, steroids, etc.) should be considered, and the drug should be withdrawn.

SIDE EFFECTS—Mild allergic reactions such as urticaria and other skin rashes have occurred. Serious allergic reactions have been extremely infrequent.

Occasionally abdominal discomfort or cramping may be encountered with the oral forms; nausea and vomiting also may occur. Usually, these complaints are diminished as therapy continues or can be controlled by reduction of dosage.

Erythrocin has not been shown to cause photosensitivity reactions, staining or hypoplasia of teeth, or toxic effects on the blood forming organs, liver, kidney or the central nervous system.

DOSAGE AND ADMINISTRATION — Treatment should continue for forty-eight hours or more after symptoms have subsided and temperature has returned to normal. The exact length of therapy will depend on the severity of the infection, and other clinical factors. In the treatment of group A beta hemolytic streptococcal infections, a therapeutic dosage of erythromycin should be administered for at least ten days to help prevent rheumatic fever or glomerulonephritis.

Oral—For mild to moderate infections caused by readily susceptible organisms, the usual dosage for adults is 1 Gm. daily in divided amounts. For more severe infections or those caused by less susceptible organisms, dosage may be 1.5 to 2 Gm. daily in divided amounts. When indicated, dosage may be 4 or more grams per day.

For infants and children, the basic recommendation of erythromycin ranges from 15 to 25 mg./lb./day. These amounts are administered in divided doses at four- to six-hour intervals.

As with many antibiotics, optimum blood levels are obtained when doses are given fasting. The daily dose may also be divided into two portions and administered twice daily one hour before meals.

In fulminating or life threatening infections, a parenteral form of erythromycin is preferred.

In persons with a well-established history of a previous attack of rheumatic heart disease, continuous *prophylaxis* with erythromycin may be achieved with 200 mg. daily.

To help prevent endocarditis when patients with a history of rheumatic fever or congenital heart disease undergo dental or other operative procedures, a dosage of 250 mg. four times daily is recommended for adults and older children. For small children, 20 mg./lb./day (not to exceed 1 Gm. per day) in three or four divided doses is recommended. Medication should begin on the day of the operative procedure and continue for two days after the operation. In addition, an extra dose should be administered one hour before the operative procedure. If oral administration is not feasible (e.g., in abdominal surgery), an equivalent injectable dose of erythromycin may be given one hour before the operation or as an alternate to oral medication at appropriate intervals for the entire prophylactic schedule.

When penicillin sensitivity precludes its use as the drug of choice in the treatment of syphilis, erythromycin is a suitable alternate drug. The recommended dosage is 20 to 30 grams of erythromycin given over a period of 10 to 15 days (500 mg. 4 times daily). Treatment with such alternate antibiotic must be accompanied by close follow-up of the syphilitic patient since erythromycin has not had adequate evaluation in all stages of syphilis. Spinal fluid examinations must be done as part of follow-up after this therapy.

In the treatment of gonorrhea, patients with a suspected lesion of syphilis should have darkfield examinations before receiving erythromycin and monthly serologic tests for a minimum of four months. Daily dose is the same as for syphilis; however, a period of 5 days treatment is adequate for gonorrheal urethritis.

Children's Dosage: Erythrocin—Chewables

Body Weight	Dosage
15 to 25 lbs.	½ Chewable tablet (100 mg.) four times daily,
25 to 50 lbs.	1 Chewable tablet (200 mg.) four times daily
50 lbs. or more	1 Chewable tablet (200 mg.) five times daily.

Note: New formulation provides equivalent absorption whether chewed or swallowed.

Children's Dosage: Erythrocin Granules—Drops

Body Weight	Dose	Drops or Suspension	Frequency	Daily Dosage
Under 10 lbs.	20 mg./lb./day divided into 4 doses			
10 to 15 lbs.	50 mg.	½ dropperful	4 times/day	200 mg.
15 to 25 lbs.	100 mg.	1 dropperful or ½ teaspoonful	4 times/day	400 mg.
25 to 50 lbs.	200 mg.	1 teaspoonful	4 times/day	800 mg.
Over 50 lbs.	200 mg.	1 teaspoonful	5 times/day	1000 mg.

The concert was just underway,
When to the conductor's dismay
Cramps and diarrhea,
Did so quickly appear,
The maestro no longer could stay.

Because diarrhea with cramping, nausea, and painful straining can strike at the most inopportune time, it takes a comprehensive agent to treat the total diarrheal syndrome and help get the patient back on the job. That's why so many physicians rely on Donnagel, especially during the fall and winter months when "flu" and viral gastroenteritis usually hit their peak.

Donnagel is much more than just a simple kaolin-pectin combination. It also contains the belladonna alkaloids to calm GI hypermotility and help relieve the distressing discomforts which so often accompany diarrhea. Certainly it's less expensive and more convenient than taking two medications. And the dosage is lower too. Available in the handy 4-oz. plastic bottle at pharmacies everywhere on your prescription or recommendation.

When diarrhea and its discomforts separate a man from his job . . .

Donnagel®

Each fluid ounce contains: Kaolin, 6 g.; Pectin, 142.8 mg.; Hyoscyamine sulfate, 0.1037 mg.; Atropine sulfate, 0.0194 mg.; Hyoscine hydrobromide, 0.0065 mg.; Sodium benzoate (preservative), 60 mg.; Alcohol, 3.8%.

A·H·ROBINS

A. H. Robins Company,
1407 Cummings Drive,
Richmond, Va. 23220

Coughs are back.

clear the tract with the

Robitussin® Line

The coughing season is here again. Time to rely on the four Robitussins and Cough Calmers to help clear the lower respiratory tract. All contain glyceryl guaiacolate, the efficient expectorant that works systemically to help increase the output of lower respiratory tract fluid. The enhanced flow of less viscid secretions soothes the tracheobronchial mucosa, promotes ciliary action, and makes thick, inspissated mucus less viscid and easier to raise. Available on your prescription or recommendation.

For coughs of colds and "flu"

Robitussin®

Each 5 cc. contains:

Glyceryl guaiacolate	100.0 mg.
Alcohol, 3.5%	

For unproductive allergic coughs

Robitussin A-C®

Each 5 cc. contains:

Glyceryl guaiacolate	100.0 mg.
Pheniramine maleate	7.5 mg.
Codeine phosphate	10.0 mg.
(warning: may be habit forming)	
Alcohol, 3.5%	

Non-narcotic for 6-8 hr. cough control

Robitussin-DM®

Each 5 cc. contains:

Glyceryl guaiacolate	100.0 mg.
Dextromethorphan hydrobromide	15.0 mg.
Alcohol, 1.4%	

Clears sinuses and nasal stuffiness as it relieves cough

Robitussin-PE®

Each 5 cc. contains:

Glyceryl guaiacolate	100.0 mg.
Phenylephrine hydrochloride	10.0 mg.
Alcohol, 1.4%	

Robitussin-DM in solid form for "coughs on the go"

Cough Calmers®

Each Cough Calmer contains:

Glyceryl guaiacolate	50.0 mg.
Dextromethorphan hydrobromide	7.5 mg.

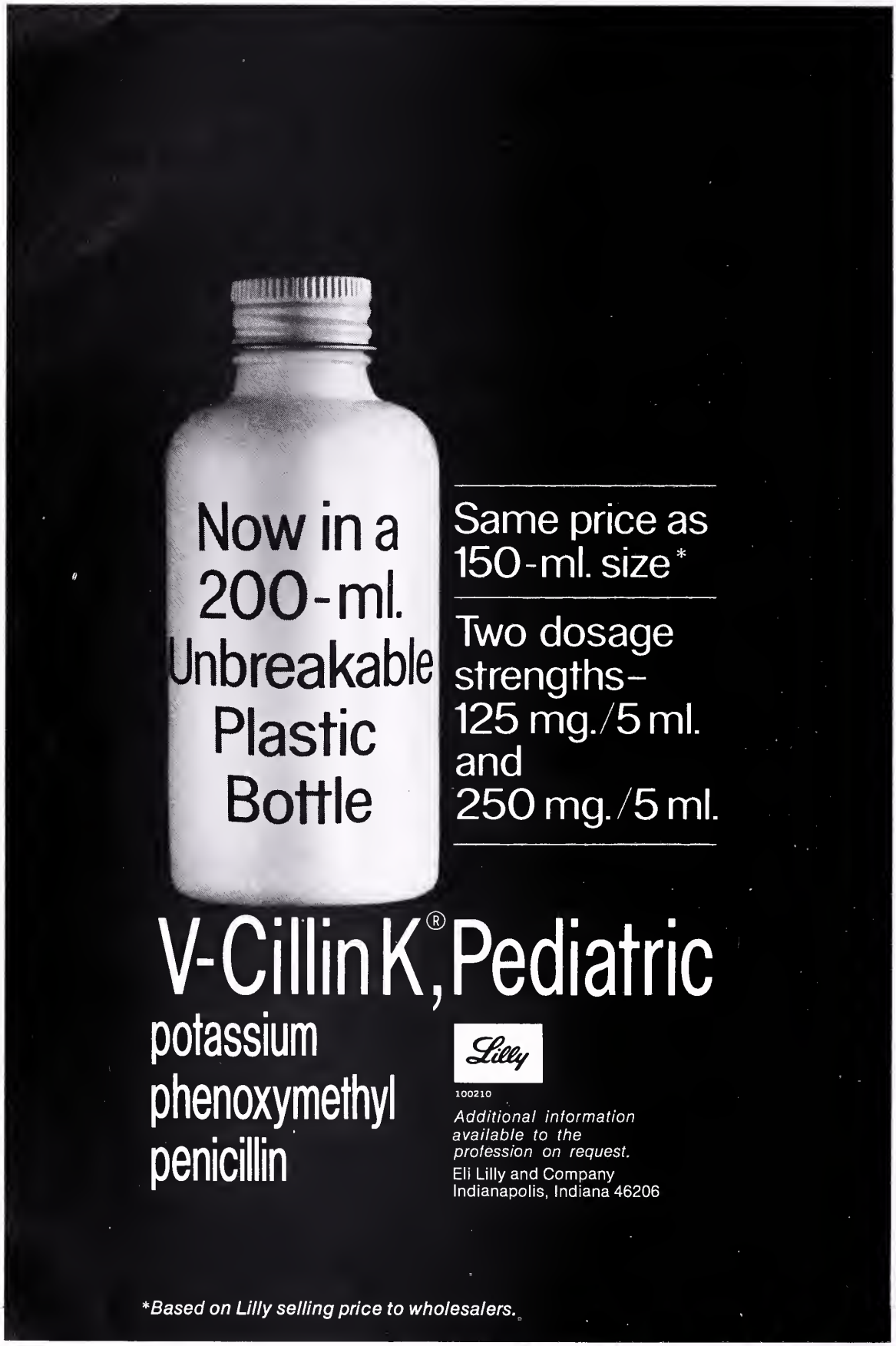
Select the Robitussin®"Clear-Tract" Formulation That Treats Your Patient's Individual Coughing Needs:

Robitussin® extra benefit chart

All 5 Robitussins have an EXPECTORANT-DEMULCENT action. Keep this handy chart as a guide in selecting the formula that provides the *extra* benefits you want for your patient.

	Cough Suppressant	Antihistamine	Long-Acting (6-8 hours)	Nasal, Sinus Decongestant	Non-Narcotic
ROBITUSSIN®					●
ROBITUSSIN A-C®	●	●			
ROBITUSSIN-DM®	●		●		●
ROBITUSSIN-PE®				●	●
COUGH CALMERS®	●		●		●

A. H. Robins Company, Richmond, Va. 23220 A·H·ROBINS


Now in a 200-ml. Unbreakable Plastic Bottle
Same price as 150-ml. size*
Two dosage strengths– 125 mg./5 ml. and 250 mg./5 ml.
V-Cillin K®, Pediatric
potassium phenoxymethyl penicillin
Lilly
100210
Additional information available to the profession on request.
Eli Lilly and Company
Indianapolis, Indiana 46206
*Based on Lilly selling price to wholesalers.

Beware Hot Weather Football Practice

IT IS GRIM BUT TRUE that during August and September each year, some five or six boys in the United States probably die of heat illness during practice sessions of high school or college football.

The Committee on the Medical Aspects of Sports of the American Medical Association has long tried to impress on every football coach, athletic trainer and team physician that he must understand the physiological basis for heat fatigue, heat exhaustion and heat stroke—including the signs and symptoms. It is their combined responsibility to know and carry out proper procedures to prevent those problems . . . and to recognize and care for them if they happen.

Heat exhaustion and heat stroke are preventable by careful control of the conditioning program of the athlete. First, of course, comes an adequate medical history and medical examination before practice starts. Once the boys start working out, it is essential to provide for gradual acclimation to hot weather activity. Equally important is the need to adjust salt and water intake to weather conditions. One superstition to be dropped is the one about not drinking water during practice sessions or games.

More frequent rest periods during hot weather are also a "must." And watch carefully for signs or symptoms of heat illness.

The boys themselves are eager to get out and give their all. So it's up to the people responsible for them to see that the "all" they give doesn't include their health or life through serious heat illness.

Kenneth C. Sawyer, M.D.
Trustee, American Medical Association

Quality of Education

SUMMER IS OVER. It is time to go back to school. From the children comes the time-worn question: "Why do I have to go to school?" The answer is not as pat and simple as once. The value of an education is rejected by a vagrant segment of young adults who believe they can return to the simple life and ignore civilization. More important, the quality of education in America has deteriorated. The parent knows this—so does the child.

It is now apparent that the efforts to provide first rate education for the disadvantaged minority have lowered the quality previously available for the majority. Time and money in huge amounts have been spent in racial integration of our school systems. Whether the magnitude of the effort be right or wrong, and even the high courts of the land are confused, the result has been massive allocation of resources from education to integration.

Moreover, we have completely reversed our long time fundamental aim in education. In the past the principal goal of the system was to provide the academically inclined child the opportunity to advance as rapidly and as high as he was able. In contrast, major efforts in education over the past few years have resulted in the slowing down of the system to assure the equal opportunity of the underprivileged. The parent wonders if it is fair or wise to demand academic achievement when social adjustments are the child's major problem and concern. Regardless of whether the change in emphasis be necessary, the Russians and our other competitors in the world have not changed their course—academic supremacy are the only goals of the school system.

Other problems confront our system. Teachers are too busy with student social problems to have time for steady academic effort, too thwarted with non-receptive students to maintain their enthusiasm for teaching, and like many other citizens, too involved in the economics of personal reward and security to be dedicated to their primary mission. The increase in our population strains the facilities so that as we preach and campaign against delinquency we paradoxically contribute to the same by split sessions, other short-cuts, delays and strikes. Although major political candidates advocate that every child is entitled to a college education, and although the champions of busing ignore the cost, there is a limit to our resources for education just as there are limits for all tax-supported functions, and somehow we must face up to the laws of supply and demand. The problems of society in general, including unrest and disillusionment of the young, loss of respect for each other and for our elders, and the unbelievably wide usage of drugs, increase the magnitude and the complexity of the problems of education.

Hopefully, the child will have a teacher to identify with like Mr. Dixon of television's Room 222 rather than be frustrated by the wish for such an instructor. Hopefully, the child's academic environment will improve to where scholastic achievement has an equal footing with social adjustment. But the fact remains that at this moment there is a hiatus in the total educational program which will be reflected in the scientific and industrial achievements of our Nation tomorrow—including medicine.

I guess the answer for the child the first morning of this school year is the same as it always was, "You must go to school to learn to understand and to get along with people, and to learn everything you can about history, language, math, and science—and it is a lot harder job than when I was your age. I love you."

Ecologic illness

*Investigation by provocative tests with Foods and Chemicals 1963-1970**

Lawrence D. Dickey, MD, Fort Collins, Colorado

ECOLOGIC ILLNESS REFERS to conditions resulting from altered or maladapted responses to environmental exposures, especially of a nonpersonal nature. The altered reactions come under the heading of allergy. The frequency of allergic reactions has been variously estimated. Warren T. Vaughan, in researching a given community, states that at least 60 per cent of the population had allergic conditions, and that 10 per cent had symptoms sufficient to require medical attention.[1] The United States Department of Health and Welfare reports that 16 per cent of the entire population are affected by allergies. A recent survey of our local hospital charts, on the surgical and medical floors, revealed 20 to 30 per cent of the charts on each floor red-flagged for an allergic condition. We recognize the natural biologic exposures to dust, pollens, mold spores, terpenes, animal danders, foods, drugs and various contactants as producing allergic reactions. These may be manifested as perennial nasal allergy, hay fever, asthma and hives.

Man-made environmental exposures to drugs and chemicals in our air, food, water and housing presents another problem not specifically related to allergic states as we understand them. This problem is better understood in terms of "specific adaptation" as developed by Theron G. Randolph,[2] based on Hans Selye's concept of general adaptation. Dr. Randolph prefers to speak in terms of individual susceptibility as related to the various stages of adaptation rather than in terms of allergy. Allergy has become associated with antigen-antibody reactions which do not explain the failures of adaptation to chemical, food and drug exposures.

Clinical ecology is developing as a broad new medical specialty which goes beyond the fields presently covered by allergy. In recent years, new concepts and approaches to this field have evolved. As early as 1921, W. W. Duke reported[3,4] using injections of food extract to reproduce presenting symptoms in patients with gastrointestinal and genitourinary complaints. He neutralized the provoked symptoms with adrenalin. In 1960, Herbert Rinkel and Carleton Lee began the use of a symptom provoking and neutralizing test in the study of food allergy. They used different 1:5 serial dilutions of identical food extracts in both phases of the test. This work was presented at the First International Congress of Food and Digestive Allergy in Vichy, France, in 1963, and published in January, 1964.[5] The test consists of the intracutaneous injection of a food extract of sufficient potency to induce mild systemic symptoms, and the immediate injection of a weaker dilution of the identical extract to neutralize the symptoms.

We began using this test in March, 1963, and after a period of time modified it by administering the extract sublingually instead of by intracutaneous injection.[6] Other environmental exposures can be studied in this same manner. For example, Randolph, in 1963, began to use synthetic ethanol, made from ethylene gas, as an indicator of petrochemical susceptibility. Phenol has been used to study another aspect of the chemical susceptibility problem, as it relates to plastics, drugs and antiseptics. Synthetic ethanol and phenol are now being used as test materials in addition to food extracts. Sublingual extracts of foods, ethanol and phenol have been used in therapy with good results in about three-quarters of the cases in which they

*Presented at the centennial meeting of the Colorado Medical Society, Broadmoor Hotel, Colorado Springs, Colo., Sept. 24, 1970.

have been employed. The same amount of the dilution of extract that neutralizes symptoms has been used by administering a drop under the tongue to prevent or relieve symptoms induced by exposure to foods and chemicals.

The present report summarizes cases investigated by the symptom provoking and neutralizing technic. Other methods of investigating ecologic illnesses are of equal or even greater importance. These have been used in various combinations to verify the validity of the clinical diagnosis. These methods will be briefly summarized to illustrate how ecologic illnesses can be studied.

The individual deliberate feeding test, consisting of observing the reaction to two closely spaced feedings of a single test food after 4 to 10 days of complete avoidance, was developed by Herbert Rinkel, 1944.[7] It has been used extensively by those acquainted with the technic, and, when repeated three times with positive results, confirms the clinical diagnosis both for the patient and physician.

The comprehensive environmental control program[2] developed by Randolph is an important contribution to the investigation of ecologic illness. This program consists of 5 to 6 days of total fast on bottled artesian water in a hospital where all other environmental exposures are simultaneously avoided as far as possible. After any withdrawal reactions have subsided, and the patient is symptom free with a stable pulse, single foods, chemically less contaminated and organically grown when available, are introduced to observe food reactions. This is followed by four to six meals of the test negative foods commercially obtained. If cumulative reactions to these foods occur, this is considered as evidence of sensitivity to pesticide residue or other chemical contaminants. The patient is then successively returned to his home and work environments and his reactions observed. The last two procedures, the deliberate feeding test and the environmental control program, are provocative types with a period of avoidance followed by test re-exposures. After avoidance, re-exposure produces acute test reactions, and on continued exposure symptoms tend to become milder and chronic. The sublingual symptom provoking and relieving test does not require a period of avoidance.

Three laboratory procedures have been useful. The cytotoxic test of Black, perfected by Bryan and Bryan,[8] has been especially useful in indicating both food and chemical sensitivity problems. It evaluates sensitivity to agents that cannot be tested safely on a patient and also measures both active and latent sensitivity. It consists of observing the reactions of the patient's living white blood cells, red blood cells and blood platelets to food extracts and serial dilutions of chemicals. It has correlated well with other positive test reactions as we have performed them over the past three years.

Nasal cytology, by the contact smear technic of Bryan and Bryan[9,10] is useful in differentiating viral and bacterial infection and allergic reactions or combinations of the same. Attention is focused on the eosinophils, mast cells, polymorpho-nuclear leukocytes and nuclear and cytoplasmic changes in the nasal epithelial cells. Further differentiation between inhalant and ingestant allergies is suggested by the proportion of eosinophils and mast cells. A predominance of mast cells suggest ingestant allergy.[11]

Surgical lesions are not uncommon in patients with ecological illness, involving the gastrointestinal and genitourinary tracts. Study of the microscopic sections of these lesions for eosinophilic infiltrations and mast cells has been useful in investigating some of the cases.

As of July 1, 1970, over seven thousand provocative tests have been performed in my office. Chart 1 shows the results of 690 patients, who gave 2,989 positive reactions. On the left of the chart you will observe the four

CHART 1

Symptoms in 690 Patients who had 2,989 Positive Provocative Food and Chemical Tests 1963 to 1970

Symptoms	Cerebral & Behavioral	E. E. N. T.	Chest	Gastro-intestinal	G.I. & G.U.	Genito-urinary	Neuro-Muscular	Skin	Totals
Presenting	209	406	130	186	62	85	50	109	1237
Reproduced	173	257	80	145	4	25	30	50	764
Induced	676	771	162	136	1	7	166	135	2044
Presenting and Relieved	50	47	23	32	1	6	7	15	181

headings under symptoms. The first, presenting symptoms indicate those elicited from the clinical history. These figures will vary from physician to physician according to his special field of interest and thoroughness in history taking. The next three headings divide test results into reproduced presenting symptoms, induced symptoms not elicited in the clinical history and relieved symptoms. Reproduced presenting symptoms confirms the diagnosis. Since a patient's history is never wholly accurate or entirely complete, induced symptoms can be considered as induced history. Further questioning usually results in discovering these symptoms have been so common to the patient that they were not mentioned as a complaint.

Presenting and relieved symptoms represent a relatively small group of patients who present with active symptoms. In these cases only the relieving phase of the provocative test is employed. Groups of five or twenty-five foods have been used in the relieving phase of the provocative test. If presenting symptoms are relieved by such a screening test, it indicates that one or more foods in the group are the cause of symptoms. Across the top of the chart, symptoms by systems are divided into eight groups; cerebral and behavioral; eye, ear, nose and throat; chest; gastrointestinal; gastrointestinal and genitourinary; genitourinary; neuro-muscular and skin. There were more unexpected induced symptoms in all groups except the G.I., G.I. & G.U. and the G.U. These groups represent the author's field of practice. A single provocative test often produces more than one symptom, averaging at least two. In the cerebral and behavioral group and the neuro-muscular group, there were over three to one induced as presenting symptoms. In the E.E.N.T. group there were almost two to one. Induced symptoms were low in the G.U. group. This is due to the reluctance of the patient to complain of such symptoms as urinary urgency and frequency. Close observation will suggest their presence, and questioning then will uncover these complaints.

The cerebral symptoms consisted mainly of headache, fatigue and headache and fatigue combined. Symptoms listed under fatigue, also included lethargy, drowsiness and sleepiness. For the most part, these were subjective symptoms, but close observation often revealed an associated objective finding. This was especially true when the complaint was fatigue. In several instances during the provocative phase of the test, a patient would ask if he could lie down, and then be fully awake and alert during the relieving phase. In many instances drowsiness was observed, and the patient did not complain, because he interpreted this as becoming bored with the whole procedure. An example of this is observing a patient reading. During the provocative phase, he would discontinue reading, and actually doze off, then awaken and resume reading during the neutralizing phase. Patients were not told what was being tested or the phase of the test until it was over.

Behavioral symptoms were mainly crying, irritability, confusion, depression, faintness and difficulty concentrating. One patient said she experienced the sensation of surgical anesthesia induction during the provocative phase and the sensation of recovering from anesthesia during the neutralizing phase of a carrot test. Behavioral symptoms were more often induced than listed as presenting. A young lady, age 16, had epileptic seizures for several months. When questioned as to what food in her diet she would miss most, she stated, "iced tea." Further questioning revealed that, for a period of a year, she had regularly been consuming iced tea two to four times a day. Tea, along with other foods, were removed from the patient's diet for four days, and twenty minutes after the reintroduction of iced tea on the fifth day, the patient experienced an epileptic seizure.

Symptoms relating to the special senses were in the E.E.N.T. group, which included mainly the symptoms of perennial nasal allergy and hay fever. Blurred vision and double vision were induced several times. In one case, tunnel vision was induced by tea, and this had been a prodromal symptom in migraine which the patient had experienced in past years. Another patient had unilateral glaucoma, induced by brewer's yeast. She had several other foods which produced positive provocative test reactions, but none of these affected her vision. One patient, with hearing loss due to milk, was checked with

audiometer and word discrimination studies before and after the provocative test and again after neutralization. The hearing diminished with the provoking phase and returned with neutralization. Word discrimination was more markedly affected than the hearing.

The chest group included mainly cases of asthma and bronchitis and several with cardiovascular symptoms consisting of angina, arrhythmia and tachycardia. Observation of pulse changes with provocative testing and individual deliberate feeding tests were considered important objective findings. The importance of pulse observations have been well documented by Coca.[12]

The gastrointestinal group contained cases of gastric ulcers, duodenal ulcers, biliary disease, regional enteritis and ulcerative colitis, as well as a wide variety of dyspepsias and diarrheas. Patients with combined gastrointestinal and genitourinary symptoms were listed separately. Previous observation had indicated that approximately one-fourth of the patients presenting with gastrointestinal symptoms also had genitourinary symptoms. It was felt that ingestant allergens first reacted on the intestinal tract, and the same allergen reacted again in the process of elimination from the body through the urinary tract. The genitourinary group contained patients with voiding problems, varying from incontinence to urinary retention, hematuria, albuminuria and interstitial cystitis.

Behavioral changes have been especially noticeable in children. When positively reacting foods have been removed, the child's disposition improves, and an improvement in school work is reported almost invariably. This has been especially true in enuretic children. The most common offending factors have been milk, wheat, chocolate milk and various beverages containing artificial sweeteners and colorings. Within a week after elimination of milk and chocolate, one father reported he could, for the first time, "get along with his daughter." In another case, after the elimination of milk and Kool-aid, a mother reported a month later that her daughter's irritability and enuresis had disappeared, and she was no longer a "problem child." Every pediatrician with whom I am acquainted, who is doing this type of testing, can cite numerous examples of dramatic, induced, behavioral changes in children.

The finding of tissue eosinophils and mast cells in past surgical specimens has led to ecologic investigation, and in current specimens tends to substantiate an etiological diagnosis. The eosinophils are easily detected in the routine pathological slides, but the mast cells are demonstrated by use of the May-Grunwald Giemsa stain. Five cases are used to illustrate tissue eosinophils and mast cells.

CASE REPORT

Mrs. D. J. had a large perforated gastric ulcer showing eosinophils and a few associated mast cells. Postoperative provocative tests with milk and corn reproduced acute severe epigastric distress.

Mrs. M. T. revealed conspicuous eosinophilic infiltration in a gastric biopsy specimen taken three years previously. This lead to provocative testing which proved positive for corn, beef and coffee. Elimination of beef and coffee and sublingual neutralization for corn relieved the presenting symptoms of headache, fatigue and epigastric distress.

Mr. E. K., known sensitive to both milk and wheat, had regional enteritis with fistula to the bladder and rectum requiring surgical resection. Postoperatively it was found that corn and eggs, in addition to milk and wheat, had to be avoided to control symptoms. The surgical tissue section showed many eosinophils and mast cells, often in close association.

Mrs. L. F. had interstitial cystitis which was aggravated by orange juice. Bladder biopsy specimen revealed degranulating mast cells associated with tissue eosinophils.

Mr. E. B. had an acute asthma attack two hours after a trans-urethral prostatic reaction. He was found reactive to sugars, and it was thought the glucose in the post-operative IV might have played a part in the asthma. Tissue sections revealed many degranulating mast cells associated with eosinophils.

The neuro-muscular symptoms group consists mainly of myalgias, arthralgias and general or localized itching, burning, tingling and numbness. The skin symptom group contains many id type reactions due to sensitivity to pathogenic fungi. Especially complex were the chronic urticaria cases. A few selected case histories will illustrate some specific examples of relieved and induced symptoms by provocative testing.

CASE REPORT

Miss L. W., age six, presented with recurrent nausea, vomiting and abdominal pain of six weeks' duration. The mother stated, "She doesn't act like herself." The young lady was non-communicative and did not seem to respond in any way to questioning. She had atopic dermatitis at age one and perennial nasal allergy at age four. Milk was a large factor in her diet, and it was decided to do the relieving phase of the provocative test for milk. The number three dilution of milk produced a marked change in this child. Her stomach ache was relieved. She now responded in a normal fashion to questioning and left the office acting like a normal, happy and responsive child.

Mrs. B. M., age 35, was observed over a period of years, during which time she developed the petro-chemical sensitivity problem including acute sensitivity to tobacco smoke. This young lady lived in an adobe house in Santa Fe, New Mexico, which was heated with an old floor furnace and four corner-room gas heaters. The kitchen was very small with a non-vented gas cook stove, a gas hot water heater and a gas refrigerator. She suffered from neck and shoulder myalgia dating from an attack of bulbar polio several years before, as well as other myalgias. She had the opportunity to change her house to all electric but declined, stating that, "she liked her gas utilities." About a year later, after being away from home and away from gas appliances for about two weeks, she returned home symptom free and immediately found herself severely myalgic. On provocative testing with ethanol and tobacco smoke, her myalgic symptoms were reproduced as well as difficulty with speech, headache, crying and nervous irritability reminiscent of her earlier attack of bulbar polio. Exposure to even moderate amounts of tobacco smoke still induce irritability, neck and shoulder myalgia and a tendency to weep.

Mrs. M. W., age 53, was known to be sensitive to many foods and inhalants. She had fatigue, gastrointestinal complaints and chronic cough. After the phenol test, an excessive exposure to lysol was discovered. She used lysol as a household deodorant, used lysol douches and at times used a lysol solution on her skin, dating from a time when she had a staphyloccic skin infection. Avoidance of this excessive exposure made her previous therapy more effective.

Mrs. J. R., age 36, suffered from severe migraine of long standing which had been aggravated by all medication given for its relief. She was being considered for psychiatric referral when she came in for allergic evaluation. She was found sensitive to many foods and inhalants as well as ethanol and phenol. A few days after the positive phenol test, she drank canned tomato juice and experienced a reaction similar to the phenol reaction. At first she thought of it as a tomato reaction, but a short time later she had some of her own tomatoes, canned in glass, with no reaction. After relating this experience, she was given salmon canned in glass. She did not react to this except to exclaim how much she enjoyed it. She was then told to eat salmon canned in tin which is lined with a phenolic resin, and this produced a reaction with headache and dizziness. With sublingual therapy, rotary diversified diet and avoidance of drugs, she made a very satisfactory recovery and was able to hold a job for the first time in eighteen years.

Miss L.P., age 18, presented with seasonal hay fever. When she was treated with the appropriate antigens, suspended in an animal vegetable glycerine vehicle, her hay fever symptoms cleared, but she became lethargic and incoordinated with difficulty in concentrating. Her mother stated that she was worse off than before, even though her hay fever symptoms had cleared. A provocative test for the gylcerol induced nervousness, tension and tremor. Her antigenic prescription was remixed in normal saline solution which now controlled her hay fever without causing adverse cerebral and behavioral symptoms.

Mrs. M. A., age 59, was referred for ecologic evaluation, because of daily hives of over three months' duration which were resistant to steroid and other therapy. The patient had a history of environmental inhalant perennial nasal allergy that responded to hyposensitization two years before. There was a history of hypoglycemia and

Ec-
on-
omy!

Dicarbosil®
ANTACID

Your ulcer patients and others will appreciate it. Specify DICARBOSIL 144's—144 tablets in 12 rolls.

ARCH LABORATORIES
319 South Fourth Street, St. Louis, Missouri 63102

several food sensitivities. Provocative tests with phenol and synthetic ethanol both produced and relieved itching of the skin but no hives. A comprehensive environmental control program in the hospital was advised. After six days total fast on artesian water, the hives had almost disappeared. After the first three days of feedings with single organically grown foods, the hives completely disappeared. After testing single feedings of organically grown foods without reactions, the same foods, procured through the ordinary commercial sources, were given in four successive meals, and a few hives and itching resulted. The patient was placed on a four day rotary diversified diet of organically grown foods. Three months later the patient's hives began to return and were definitely associated with the commercial foods. A six day fast at home cleared the hives again. This appears to represent a case of primary chemical sensitivity to food additives and contaminants, such as pesticide residue.

Mrs. I. A., age 78, lost a right eye in 1966 due to glaucoma. She was referred for allergy evaluation, because for the past four years she had episodes of acute swelling about the eye with the plastic prothesis. These reactions have occurred at an interval of approximately four weeks and lasted on an average of two days. The only history suggesting allergy was that of migraine years ago. These headaches have recurred since the eye surgery. A provocative test with phenol produced and relieved a salty taste in mouth and light headedness. This was confirmed by retesting. She was put on a sublingual relieving dose of phenol three times a day. Four months later she reported no more episodes with her eye since taking the drops. Impression — this patient apparently was suffering from an allergic reaction to phenol associated with her plastic eye prothesis. This was followed by a refractory period of approximately four weeks duration. Sublingual hyposensitization with phenol has afforded relief the past four months. The patient is still looking for a glass eye.

Mrs. N. B., age 54, was known sensitive to many foods and chemicals for two years. Provocative tests with corn had reproduced both her presenting symptoms of headache and fatigue. Therapy with corn sublingually relieved the headache but not the fatigue. Preliminary to gall bladder surgery, she underwent study by the comprehensive environmental control program in the hospital. After a four day fast, all her symptoms cleared, and, on introducing corn as a test feeding, headache, fatigue and difficult breathing occurred. Complete avoidance of corn continued to control the fatigue symptoms. While in the hospital, exposure to a Christmas tree produced acute respiratory symptoms, probably due to terpenes.

Discussion

Provocative testing for foods and chemicals by the technic of Rinkel and Lee has been very useful in the management of patients, reacting to non-personal environmental exposures. This test not only reproduces or relieves presenting symptoms but induces symptoms relevant to the patient's present and past history. The neutralizing phase of this test has led to the use of neutralizing doses of food and chemical extracts in therapy. The positive results of the sublingual provocative test are validated by individual deliberate feeding tests. Cytologic observations in surgical tissue sections, contact nasal smears, and cytotoxic tests have been used both as indications for provocative testing and as confirmatory diagnostic evidence. The comprehensive environmental control program has been used in the more complicated resistant cases that are sufficiently motivated to submit to the procedure.

Provocative tests of the types here described have proved their value in establishing cause and effect relationships in the study of ecological illness. •

REFERENCES

[1] Vaughan and Black: Practice of Allergy, C. B. Mosby & Co., publisher, p. 60, 1948.
[2] Randolph, Theron G.: Ecologic Orientation in Medicine, Ann. Allergy, 23:7-22, Jan. 1965.
[3] Duke, W. W.: Food Allergy As a Cause of Abdominal Pain, Arc. of Int. Med., 28:151-165, 1921.
[4] Duke, W. W.: Food Allergy As a Cause of Bladder Pain: Ann. Clin. Med., 1:117-126, 1922.
[5] Rinkel, H. J., Lee, C. H., Brown, D. W., Jr., Willoughby, J. W., and Williams, J. M.: The Diagnosis of Food Allergy, Arch. Otolaryngol., 79:71-79, Jan. 1964.
[6] Dickey, L. D., and Pfeiffer, G. O.: Sublingual Therapy in Allergy, Trans. Amer. Soc. O & O Allergy, 5:37-44, Oct. 1964.
[7] Rinkel, H. J.: Food Allergy, II The Technique and Clinical Application of Individual Food Test, Ann. Allergy 2:504, 1944.
[8] Bryan, Wm. T. K., and Bryan, Marian, P.: The Application of in Vitro Cytotoxic Reactions to Clinical Diagnosis, The Larynogoscope, Vol. LXX, No. 6, pp. 810-824, June 1960.
[9] Bryan, Wm. T. K., and Bryan, Marian, P.: Cytologic Diagnosis in Otolaryngology, Trans. Amer. Academy of O & O, Sept. 1959.
[10] Bryan, Wm. T. K., and Bryan, Marion, P.: Significance of Mast Cells in Nasal Secretions, Trans. of Amer. Academy O & O, Sept. 1959.
[11] Shioda, H., Mishima, K.: J. Asthma Res., 3:323, 1966.
[12] Coca, A. F.: Familial Non-reaginic Food Allergy, Charles C. Thomas, Publisher (3rd Ed.), 1953.

Bacterial endocarditis on a prosthetic aortic valve

David P. Jahsman, MD and C. Basil Williams, MD,
Ogden, Utah

BACTEREMIA IN AN individual with an intracardiac abnormality often results in bacterial endocarditis. Those abnormalities producing turbulence which have a significant gradient across a valve are especially susceptible. Such is the situation with all prosthetic cardiac valves. The danger of infection is particularly great in the immediate postoperative period because of reduced humoral and cellular resistance after a period of cardiopulmonary bypass, likelihood of contamination during surgery, and presence of foreign material in the heart not as yet covered by pseudoendothelium. By use of high dosage prophylactic antibiotics pre- and postoperatively the postoperative mortality rate from endocarditis can be reduced from approximately 3.5 percent to 0.2 per cent. However, even once past this postoperative period of decreased resistance, these patients still remain liable to bacterial or mycotic endocarditis.

CASE REPORT

A 63-year-old white male had had a Starr-Edwards aortic prosthesis implanted in 1968 because of severe aortic stenosis. This was followed by marked improvement in exercise tolerance with reduction of angina pectoris. In recent months, however, he had developed mild anemia with a hematocrit of 35, thought most likely to be due to hemolysis. He did not require digitalis, but he was on chronic anticoagulant therapy.

On the evening of May 22, 1970, he developed a shaking chill with moderate dyspnea, which by the following morning became so severe that immediate hospitalization was necessary. Physical examination revealed an alert, acutely ill, white male, dyspneic, but not cyanotic. Temperature was 104°, blood pressure 140/70, pulse 96 and regular and respirations 36. There were no petechiae and no inflammation of the ears, nose or throat. Hepatojugular reflux was present at 30°. He had a well healed midline sternal scar plus a scar on the left side of the thorax of a remote empyema. The lungs were clear with good air exchange but fine rales were present at both bases. The heart was not enlarged. "Clicky" prosthetic valve sounds were heard with a faint systolic murmur at the base but no diastolic murmurs. Abdominal organs were not enlarged. Pedal pulses were readily palpable and peripheral edema was not present.

Chest x-ray showed the aortic valve prosthesis with minimal pulmonary vascular engorgement and no consolidations. Hemoglobin was 10.5 gms. %, hematocrit 34%, white blood count 7,500 with 93% PMN's, 1% lymphocytes, 5% monocytes and 1% eosinophils. Urine showed two plus protein with 4 to 5 wbc. and 20 to 30 rbc. per high power field and 1 to 2 coarse granular casts per low power field (3 specimens). Multiphasic screen (SMA 1260) showed BUN of 28 mg. %, total bilirubin 1.2 mg. %, LDH over 600 mU/ml. and SGOT 65 mU/ml. Calcium, organic phosphorous, glucose, uric acid, cholesterol, total protein, and alkaline phosphatase were all normal. A throat culture produced normal flora. Urine culture was negative.

Fearing the probability of bacterial endocarditis, blood cultures were obtained and the patient started on 10 million units of aqueous penicillin intravenously daily. On May 25, however, he was continuing to spike temperatures of 104°. Splinter hemorrhages had appeared. Additional blood cultures were obtained and he was changed to a combination of 16 gms. of ampicillin plus 16 gms. of methicillin intravenously daily in divided doses. This resulted in a prompt defervescence of his fever. On May 26 rectal temperature reached 100°, and he was afebrile after this.

By May 26 all blood cultures were growing a coagulase positive Staphylococcus aureus. It was resistant to penicillin-G but sensitive to nearly all other antibiotics. Because the sensitivity to cephalothin appeared greater than that to oxacillin, on May 27, 1970, he was changed to cephalothin 16 gms. per 24 hours in divided doses. Sensitivity of the patient's bacteria versus serial dilutions of his serum at 1:32 dilution (Schlichter test) on

May 28 demonstrated the serum was bactericidal against a concentration of 240,000 microorganisms per ml. Cephalothin dosage was then decreased to 8 gms./24 hours in divided doses.

On June 2, BUN was found to be elevated to 165 mg. % with a creatinine of 12 mg. %. He was not anuric but was retaining fluids and in mild congestive failure. He was digitalized, cephalothin was discontinued, and nafcillin, 6 gms./24 hours in divided doses started intravenously. On June 7 his serum was bactericidal at 1:64 dilution against his organism.

The BUN gradually fell during the remainder of hospitalization, reaching 24 mg. % on July 1. Antibiotics were discontinued July 6 and he was discharged July 7 on digoxin and warfarin.

From that time to the present he has remained well. The hematocrit rose to 40% by October 1, 1970. Blood cultures obtained July 11, July 22, August 10, and August 31 were all negative.

Discussion

As more and more patients receive prosthetic heart valves we can expect to see more cases of bacterial endocarditis further complicating the care of these individuals. This is a serious complication with mortality rates of over 60 per cent.

Diagnosis requires a high index of suspicion as the principal and often only symptom is fever. Anemia is nearly always present but many cases do not have the secondary signs of endocarditis such as splenomegaly or evidence of microemboli. The disease may follow any procedure producing transient bacteremia, though we were unable to obtain such a history from our patient. The disease must be considered in any patient with a prosthetic valve who has unexplained fever for a week. Blood cultures should be obtained, five or six over a 48 hour period, and studied for bacteria and fungi. The presence of non-pathogenic or saprophytic organisms is significant as these patients often develop infection with coagulase negative Staphylococci and Aspergillus. Sensitivity studies are imperative and the organism (or organisms) must be saved to help guide therapy.

The bacteria are imbedded in fibrin deposits around the valve and protected by the avascularity of these vegetations from attack by white blood cells. Therapy requires the use of bactericidal antibiotics. The pencillins, due to their bactericidal activity and ability to penetrate fibrin, are the agent of choice. They are probably best given intermittently in concentrated solutions so as to provide very high blood levels, further aiding fibrin penetration. Other bactericidal antibiotics including vancomycin, the cephalothins, kanamycin, gentamycin and the polymixins are acceptable second choices. Dosage is best guided by the use of the Schlichter test in which the bactericidal activity of the patient's serum against his organism is measured. Dosage of the antibiotic should be adjusted so that the patient's serum is bactericidal against the causative bacteria in at least a 1:8 dilution and therapy maintained for approximately six weeks.

In general, when an infection occurs around a foreign body, therapeutic success requires removal of the foreign body. This is, of course, not feasible with a prosthetic heart valve. Reoperation, however, with removal of the infected prosthesis and replacement with a new clean one is often necessary. The possibility of reoperation must be considered as soon as the diagnosis of endocarditis is made. Failure of adequate antibiotic therapy to eradicate the infection or recurrent embolization are both indications for reoperation in the expectation that replacement of the infected prosthesis with a clean one will remove a nidus. The patients should receive another full course of antibiotic therapy after this is done. The lack of effective fungicidal drugs makes mycotic endocarditis another indication for reoperation, again with the expectation of removing an untreatable nidus.

When vegetations are built up around the parts of a prosthetic valve they often prevent adequate valve closure, leading to regurgitation. In addition, infection around the suture line can lead to disruption with regurgitation. Any evidence, then, of insufficiency or other hemodynamic abnormality attributable to valve dysfunction is an urgent indication for valve replacement. The fear of reoperating through infected tissues is unjustified.

Since bacterial endocarditis on a prosthetic valve is such a difficult and dangerous problem and probably results from transient bacteremia, patients with prosthetic valves should receive prophylactic antibiotics for any procedure which could possibly cause

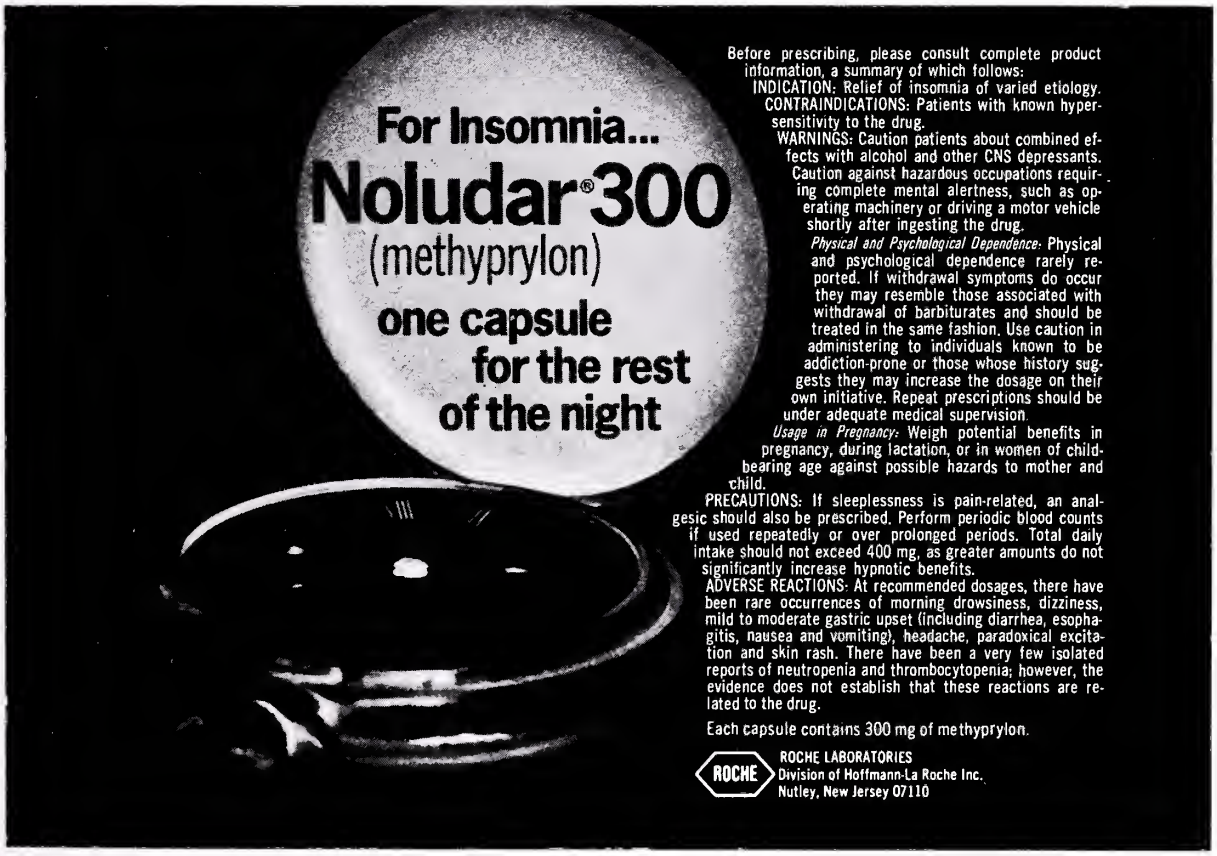
bacteremia. The choice of antibiotic should be based on the type of bacteria expected. Any infections should likewise be vigorously treated with appropriate antibiotics.

Summary

Bacterial endocarditis occurs in patients with prosthetic heart valves, months to years postoperatively, and is a grave threat to their survival. These patients should receive special care whenever they are in a situation that could produce bacteremia. The diagnosis of bacterial endocarditis must be considered whenever a patient with an intracardiac prosthesis has unexplained fever, and blood cultures should be obtained. Secondary signs and symptoms of endocarditis are often absent. Cure can be obtained with antibiotics, but the attending physician must be aware of the indications for reoperation and ready to provide this when necessary. •

REFERENCES

1. Harriston P., and Lee, W. H., Jr.: Management of Infected Prosthetic Heart Valves. Ann. Thor. Surg., 9:229-237, 1970.
2. Stein, P. D., Harken, D. E., and Dexter, L.: The Nature and Prevention of Prosthetic Valve Endocarditis. Amer. Heart J., 71:393-407, 1966.
3. Shafer, R. B., and Hall, W. H.: Bacterial Endocarditis Following Open Heart Surgery. Amer. J. Cardiol., 25:602-607, 1970.
4. Temple, W. W., Jr., Viroslav, J., and Knight, V.: Management of Bacterial Endocarditis, Am. J. Cardiol., 26:186-191, 1970.
5. Amoury, R. A.: Bowman, F. O., Jr., and Malm, F. R.: Endocarditis Associated with Intracardiac Prostheses Diagnosis, Management, and Prophylaxis. J. Thorac. Cardiov. Surg., 51:36-48, 1966.


For Insomnia...
Noludar®300
(methyprylon)
one capsule
for the rest
of the night
Before prescribing, please consult complete product information, a summary of which follows:
INDICATION: Relief of insomnia of varied etiology.
CONTRAINDICATIONS: Patients with known hypersensitivity to the drug.
WARNINGS: Caution patients about combined effects with alcohol and other CNS depressants. Caution against hazardous occupations requiring complete mental alertness, such as operating machinery or driving a motor vehicle shortly after ingesting the drug.
Physical and Psychological Dependence: Physical and psychological dependence rarely reported. If withdrawal symptoms do occur they may resemble those associated with withdrawal of barbiturates and should be treated in the same fashion. Use caution in administering to individuals known to be addiction-prone or those whose history suggests they may increase the dosage on their own initiative. Repeat prescriptions should be under adequate medical supervision.
Usage in Pregnancy: Weigh potential benefits in pregnancy, during lactation, or in women of childbearing age against possible hazards to mother and child.
PRECAUTIONS: If sleeplessness is pain-related, an analgesic should also be prescribed. Perform periodic blood counts if used repeatedly or over prolonged periods. Total daily intake should not exceed 400 mg, as greater amounts do not significantly increase hypnotic benefits.
ADVERSE REACTIONS: At recommended dosages, there have been rare occurrences of morning drowsiness, dizziness, mild to moderate gastric upset (including diarrhea, esophagitis, nausea and vomiting), headache, paradoxical excitation and skin rash. There have been a very few isolated reports of neutropenia and thrombocytopenia; however, the evidence does not establish that these reactions are related to the drug.
Each capsule contains 300 mg of methyprylon.
ROCHE
ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

Doctor! When should you retire?

Edgar W. Barber, MD, Denver

THE ANSWER TO THIS question is never easy and in some cases impossible. Can you afford to quit? Have you begun to adjust yourself psychologically and made any plans for leaving the treadmill? "Why! I would go nuts if I didn't have an office to go to and calls to make," said one senior colleague when asked about retirement. Another one answered, "I'm looking forward to it. I am systematically reducing my load, taking more time off, and developing interest in things unrelated to medicine." "In spite of the daily compliments I get from grateful patients," said a 65-year-old friend, an ophthalmologist, "next year I will quit! For nearly forty years I've given it my best. Now I know I'm slipping, memory-wise and my coordination is off. There are dozens of things my wife and I want to do together, and damned if I want to be the wealthiest eye man in the graveyard!" "I don't feel like some of our politicians seem to believe, that I am indispensable," a fellow surgeon confided, "in our specialty we should plan retirement earlier."

I have witnessed and been present when gifted and noted surgeons have refused to recognize that early senility had robbed them of their former dexterity and judgment. In my early years of training, more than once I was present when the surgeon collapsed in the operating room and had to be assisted out during a major operation. Often the physician or surgeon himself is the last to recognize that steadiness of hand and quick correct judgment does not improve with age like a vintage wine or an Amati Violin. One fine but aging orthopedist had trouble renewing his driver's license because of repeated traffic violations. Neither alcohol nor drugs were involved, but loss of usual driving reflexes were slipping, and he insisted on his usual hospital visits and patient care. Finally convinced by associates to stay out of surgery, he limited his patient contact to the Out-Patient Clinic. His lifelong devotion to our profession left him with no other interest and without a hospital to haunt and doctors with whom to mingle, life became miserable.

Some elderly physicians are prone to make errors and prescribe medication found dangerous over a generation past. As a case in point, a fine old dermatologist, who fifty odd years ago was a peer in his field, up to a few years ago was still applying Radiation with indiscretion, treating acne and other dermatoses with his ancient x-ray equipment. Plastic surgeons are still replacing damaged skin provoked by over-radiation administered many years before.

Unfortunately there are areas where the elderly M.D. is almost indispensable and when he dies, quits, or becomes incapacitated, a town or small city is left without medical help. Last fall I had the privilege to hunt quail and pheasants in a neighboring state. In our little group was the local MD. He was my age or a little younger, a fine gentleman, but obviously over-worked and worried. He was noticeably envious upon learning I had taken the hurdle into retirement. "I can well afford to quit," he said, "but what would this town do? I'm the only qualified medico in a radius of nearly forty miles." He owned or had substantial interest in many of the hundreds of acres of corn, wheat and millet, where we hunted. Oil wells dotted the landscape in every direction, dipping and raising their dinosaur noses rhythmically as they sucked the black gold into the gullet of an oil pipe line. I suggested that he advertise for a young able general practitioner to come

in as a full partner, who could relieve him of most of his load. As an added inducement, why not deed him one or more of the wells and add another well for every year he stayed and proved his worth to the community? We became well acquainted and I learned, with his daily burdens, he had had little time to keep up with some of the newer developments in surgery. He did most or all of the surgery in the local hospital. "Hell! I can do a hysterectomy as well or better now than I could twenty-five years ago," he remarked. I also learned he had just lost a close friend and patient who died from a slowly developing malignancy which probably could have been cured or indefinitely allayed by earlier diagnosis and modern treatment. He could not be faulted for this. The same thing happens even in our big centers where every facility is available for correct diagnosis and modern therapy.

How often have we in surgery had referrals of patients with a gland, node or other lesion, where the good old family doctor long ago advised, "Let's watch it for a while?" This remark too often spells doom, but is usually pronounced, "Let's wait!" Cursory or incomplete physical examinations are among other reasons why cancer, heart, and respiratory morbidity do not have a better showing on the Big Board of the Stock Exchange of Health. It is impossible to say how often an elderly physician may be to blame or how much is due to inexperience among the younger men, and what should be credited to human error.

I looked up an anesthetist friend who retired about a year ago, aged sixty-three, and asked him, "How did it affect you after you stopped so abruptly?" "I have many interests foreign to inducing anesthesia. For one thing I wanted to learn to cast a dry fly for trout. First I had a complete physical examination, learned I had to lose fifteen pounds and started graduated exercises of hiking, then jogging. Do you know what a tiring effort it is to wade against the current of some of our swift mountain streams? Then I engaged the help of an expert fly caster. He taught me the fundamentals necessary to put a fly in the vicinity of a hungry trout. It took a lot of practice on the back lawn and out in the park. But what a satisfaction there is in seeing the line and leader unfold properly and lightly with little or no disturbance of the water's surface! Few sports to me are more thrilling than successfully hooking a darting trout that has been seduced by a well presented fly!"He had many other "druthers" including travel, photography, and landscape painting.

"I'm busier and happier than I ever imagined," he continued, "I feel like I invented the whole deal."

Others I have questioned love the soil and enjoy donning their old pants, digging in the garden and getting their hands healthfully dirty. There is great satisfaction for some in raising certain plants and flowers, watching them develop and controlling the aphids. A small greenhouse of orchids "a-la Nero Wolff," would add to the challenge. Following a power lawn mower once a week is good exercise and helps to avoid one of those eternal delays for your turn on the first tee at the Country Club.

Teaching and keeping in contact with young developing doctors is a great help in keeping informed and aware of newer developments and often our own short-comings. After twenty years as teacher and assistant professor in surgery in our local medical school, an event took place that convinced me I should prepare for retirement. One night when I was on emergency call, the Chief Resident called and reported that a young man had just been admitted, the victim of an auto collision. He sustained massive liver damage, right chest contusion, and shock. When I arrived the patient was already on the table. Typed and matched blood was running into veins of both legs. A competent anesthesiologist was administering positive pressure anesthesis. This young surgeon had everything under control. He was cool, unhurried and competent. He had two able young assistants scrubbed and ready to help. I told him to proceed. He quickly exposed the liver through a long diagonal incision extending into the right chest. A huge liver fracture was exposed that almost divided the organ in two. The gentle deft care exercised by the young surgeon was gratifying to witness. Gradually he got

the bleeding controlled and closed the big rent carefully with expertly placed deep sutures. The way he "kept his cool", and the job he did would have been a credit to any surgeon. Driving home later I realized many of these up and coming men we had helped to train had outstripped us in many ways and it was time to turn most of the job over to them.

I did not feel bitter or resentful but actually proud! Recalling my medical school days when a fine professor in medicine, David Riesman, never ceased making the statement, "One of your greatest privileges and often most satisfying remuneration will come when you take time to help train those who will follow in our profession."

After over forty years in the harness, I set a date two years ago to quit one year later. I kept that date and found the transition easy and rewarding. Sleep comes easier at night. I stopped worrying about the next day's schedule and the patient in Intensive Care! It's wonderful to plan a trip with no specific date when you must return or how long you stay in one place. You also have the privilege, providing you are not driving, to have a bit of bourbon on your breath after lunch or dinner.

When should you retire? The final decision should be made unselfishly, taking into account other members of the family, especially your wife, working toward a future that will be mutually rewarding and pleasant. Often it works out better if you are separated for short periods. Many women despise hunting, fishing, camping or certain types of travel. Few men enjoy the eternal shopping and snooping about for antiques and 'objects d'art' so dear to the feminine heart. A little absence and self-indulgence can enhance future togetherness. Then when you get back, take the little lady out to dinner or a floor show and she notes your interest in some of the mini clad legs and other feminine appurtenances and you catch that faint glint of the green-eyed monster in her expression.

Finally, if you feel you should offer something of your talents to the cause of humanity, enlist for a tour of duty on the Project Hope or a similar useful enterprise. I have talked to some who have done this very thing and all say "It's one of the most rewarding experiences I ever had." I have applied for a two months tour of duty aboard The Hope and received a favorable reply, and I am looking forward to doing my bit when the need for one in my field is presented.

A fine cardiologist and friend, who had to stop because of a cardiac problem, said, "Retirement should be part of every doctor's curriculum and should be one of his important aims in life. It takes study, planning, and pleasant preparation to do it gracefully." And, let us add, successfully!

"Physician, heal thyself!" •

MAX'S CAR CLINIC
MAX
J.B.T.
HERE'S YOUR BILL, DOC. CAR IN SHOP 1 HOUR 15 MINUTES. PARTS $15.00 LABOR $110.00
GREAT SCOTT! HAVE THEY DOUBLED YOUR MALPRACTICE PREMIUMS TOO?*

*Contributed by Joyce B. Thorpe, daughter of Dr. Edgar W. Barber.

Additional information available to the profession on request.
Eli Lilly and Company • Indianapolis, Indiana 46206

Lilly

101488

in cardiac edema

Dyazide®

Trademark

Each capsule contains 50 mg. of Dyrenium® (brand of triamterene) and 25 mg. of hydrochlorothiazide.

gets the water out

spares the potassium

Before prescribing, see complete prescribing information in SK&F literature or *PDR*.

Indications: Edema associated with congestive heart failure, cirrhosis of the liver, the nephrotic syndrome, late pregnancy; also steroid-induced and idiopathic edema, and edema resistant to other diuretic therapy. 'Dyazide' is also indicated in the treatment of mild to moderate hypertension.

Contraindications: Pre-existing elevated serum potassium. Hypersensitivity to either component. Continued use in progressive renal or hepatic dysfunction or developing hyperkalemia.

Warnings: **Do not use dietary potassium supplements or potassium salts unless hypokalemia develops or dietary potassium intake is markedly impaired.** Enteric-coated potassium salts may cause small bowel stenosis with or without ulceration. Hyperkalemia (>5.4 mEq/L) has been reported in 4% of patients under 60 years, in 12% of patients over 60 years, and in less than 8% of patients overall. Rarely, cases have been associated with cardiac irregularities. Accordingly, **check serum potassium during therapy, particularly in patients with suspected or confirmed renal insufficiency (e.g., certain elderly or diabetics). If hyperkalemia develops, substitute a thiazide alone. If spironolactone is used concomitantly with 'Dyazide', check serum potassium frequently**—they can both cause potassium retention and sometimes hyperkalemia. Two deaths have been reported in patients on such combined therapy (in one, recommended dosage was exceeded; in the other, serum electrolytes were not properly monitored). Observe regularly for possible blood dyscrasias, liver damage or other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving Dyrenium (triamterene, SK&F). Rarely, leukopenia, thrombocytopenia, agranulocytosis, and aplastic anemia have been reported with the thiazides. Watch for signs of impending coma in acutely ill cirrhotics. Thiazides are reported to cross the placental barrier and appear in breast milk. This may result in fetal or neonatal hyperbilirubinemia, thrombocytopenia, altered carbohydrate metabolism and possibly other adverse reactions that have occurred in the adult. When used during pregnancy or in women who might bear children, weigh potential benefits against possible hazards to fetus.

Precautions: Do periodic serum electrolyte and BUN determinations. Do periodic hematologic studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in postsympathectomy patients. The following may occur: hyperuricemia and gout, reversible nitrogen retention, decreasing alkali reserve with possible metabolic acidosis, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), digitalis intoxication (in hypokalemia). Use cautiously in surgical patients. Concomitant use with antihypertensive agents may result in an additive hypotensive effect.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis; rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting (may indicate electrolyte imbalance), diarrhea, constipation, other gastrointestinal disturbances. Rarely, necrotizing vasculitis, paresthesias, icterus, pancreatitis, and xanthopsia have occurred with thiazides alone.

Supplied: Bottles of 100 capsules.

SK&F

SK&F Co., Carolina, P.R. 00630
a subsidiary of Smith Kline & French Laboratories

How smoking causes lung cancer

Harvey S. Rusk, MD, Pueblo, Colorado

A new etiology of respiratory cancer is presented without absolute proof. However, circumstantial evidence points to the possibility that tissue dryness and vasoconstriction from nicotine produce cellular changes in areas of the respiratory tract most exposed to dryness. These same areas are the most frequent sites of respiratory cancer.

THE CELLULAR CHANGES IN respiratory mucous membranes which are caused by smoking are illustrated in "Progress Against Cancer 1970," pages 46 and 47, but the way smoking causes these changes is not given. This is the missing link of evidence which I shall try to show. The vasoconstrictor action of nicotine also is not mentioned in the Progress Report, but is covered by a mass of studies on tar and other by-products of smoke.

Putting together the circumstantial evidence pertaining to tissue dryness and vasoconstriction with the cellular changes as illustrated in the Progress Report is the excuse for writing this paper. Much of the presentation will be new in literature and subject to question and doubt, and time and study will be needed. It took many years for smoking to be a proved cause of lung cancer.

Many causes of cancer are suggested and it is obvious that the same cause does not apply to all cases. But cancer of the respiratory tract has some common factors. Respiratory membranes from the nose to the periphery of the lungs are dependent on moisture being present in the tissues and in the air inspired. This is necessary for both comfort and function. The membranes of the nose, the mouth and the pharynx are most symptomatic. For instance, one feels thirsty in the mouth, not in the stomach or feet. The lungs are almost symptomless from dryness. Air inspired is said to be saturated by the time it reaches the periphery of the lung. But this may not always be true, as my experiments show that the air exhaled is not saturated under certain conditions.[1]

The whole respiratory tract is affected also by decongestants in spray or tablets and, while there may be temporary relief, dryness soon sets in. Druggists and physicians prescribe these for all nasal troubles and headaches. But chronic sinusitis rarely causes headaches.[2]

Smoke is the most common vasoconstrictor used and this relation is rarely recognized. The action of tar is much better known. Nicotine is a powerful vasoconstrictor; the effect of one or two cigarettes is greater than the vasodilating effect of intoxicating amounts of alcohol.[3]

I suggest, therefore, that the combined action of tissue dryness and vasoconstriction, which are synergistic, will produce changes in cells of mucous membranes that are especially exposed to dryness. These are the pharynx, the vocal cords, and the bronchi where dryness is more common. Do you think that cancer is more common here than in the periphery of the lung where it is more moist? Some types, as squamous cell cancer, are more common in these areas. Squamous cell cancer of the lung occurs most often in the first bronchus off the main stem, and accounts for 50 per cent of all lung cancer. Anaplastic undifferentiated cancer occurs mostly in the main bronchus and near the orifice of a secondary bronchus.[4] It accounts for 30 per cent of lung cancer. Thus 80 per

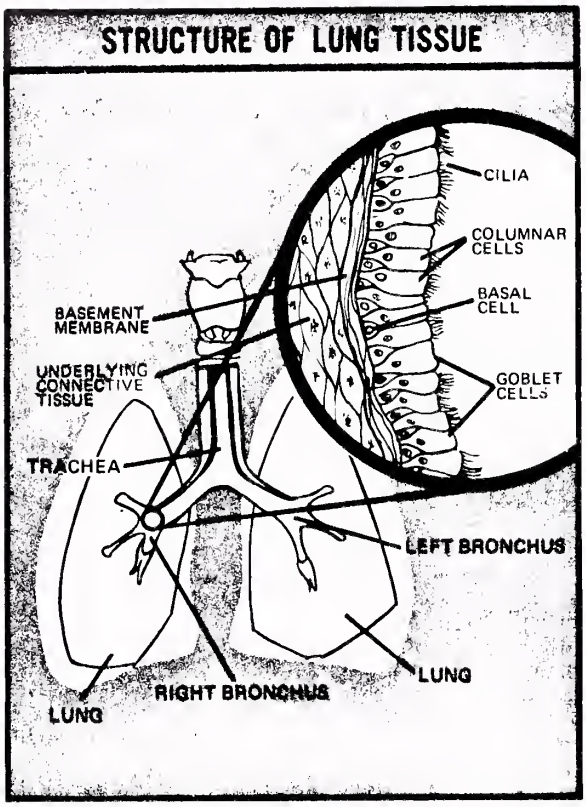


Fig. 1

Most cases of lung cancer originate in the lining or epithelium of the bronchi. Normal epithelium, represented in the circle above, is equipped to cleanse the lungs of foreign matter such as dust or smoke particles. Mucus, secreted onto the surface of the epithelium, traps foreign substances; short, hairlike cilia extending from the columnar cells continually move the mucus from the bronchi, through the trachea, and into the mouth, where it is either swallowed or expectorated.

cent of lung cancer occurs in the areas more exposed to dryness. There is another possibility that these exposed areas are more vulnerable to the effect of tar as they lack normal protection of mucus.

The vasoconstrictor effect of one cigarette will last from twenty to thirty minutes as shown by changes in blood pressure and pulse. The average smoker smokes that often, and more often if he is a heavy smoker, and his tissues will remain in constant state of constriction. Mucous membranes must be moist to be comfortable and to function normally. If they are dry very long the character of the cells will change. Easy examples are the lips, the tongue and the cornea. It is reasonable to think that the development of cancer in these dry areas of the respiratory tract is possible.[5] Pipe and cigar smokers smoke less often than cigarette smokers. Thus the tissues get time to recover from the vasoconstriction and improve their circulation and nutrition. If this is true it may explain why pipe and cigar smokers have less cancer than cigarette smokers.

Spain[6] shows a relation of fibrosis to lung cancer: "In all instances considerable fibrosis and chronic inflammation were present in areas completely removed from the sites of tumor growth. The tumors were always associated with areas of fibrosis and chronic inflammation."

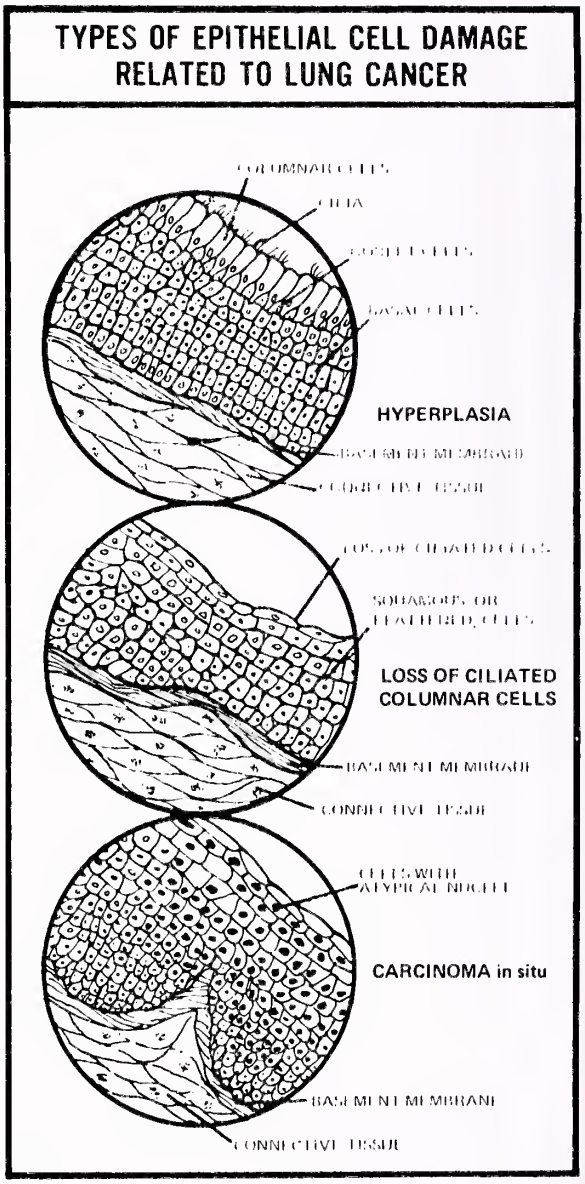


Fig. 2

Microscopic examination of epithelial cells has frequently revealed several types of changes in the bronchi of cigarette smokers. These changes usually precede invasive cancer, the stage at which cancer cells break through the basement membrane, spread through the lungs, and then to the rest of the body.

On page 46 of the Progress Report there is a drawing of the normal epithelium of the bronchus. Basal cells grow toward the surface where they become mature columnar cells with cilia. These columnar cells will slough off normally, and are replaced by immature cells from the basal layer which will mature into goblet cells.

If these moist surface goblet cells are dried up they will change character as shown in the first and second drawings on page 47, and they will become flatter and tougher and older, so that the cells are wider and the nuclei are larger, as shown in the third drawing. Because the surface is tougher, harder and older from dryness and vasoconstriction the immature basal cells build up underneath as illustrated. I have asked repeatedly if these cells are the "cancer in situ," or if it is the changed surface cells that are cancer cells. A satisfactory answer has not been forthcoming. Generally I am told that it is the whole epithelium that forms the cancer and that "cancer in situ" is potential cancer before it has become invasive. Invasion is when the basement membrane breaks and the cells are the ones that enter through the break first, and they can never become mature goblet cells, but will always remain immature.

Nealon[4] explains how squamous cell cancer spreads in the lungs. "Since the tumor extends mainly by peribronchial infiltration, the bronchial mucosa does not seem to be invaded as early as with other types of tumors. Consequently, on bronchoscopic examination the bronchus is seen to be contracted, and the normal longitudinal mucosal folds of the bronchi are accentuated but intact. When the tumor does invade the bronchus with the aid of infection, it produces a contracted, angry red bronchus almost replaced by tumor." Anaplastic or undifferentiated carcinoma "is highly invasive, extends along the bronchus, surrounding it and neighboring structures, with a firm tumor. While spread is in all directions, it is most rapid and most pronounced into the mediastinum and to adjacent regional and distant lymph nodes."

Speaking of adenocarcinoma, "While the lesion is in a peripheral position, the bronchoscopist will rarely see anything unusual. When the tumor enlarges it may compress or actually break through into a bronchus."

Atmospheric dryness, decongestants and vasoconstriction, all of which work together in mucous membranes are related to smoking and the time of exposure, rather than just a brief heavy concentration. All these factors are evident in the nose and throat where there are signs and symptoms. The nose and throat will quickly recover if the exposure is not too long. A heavy exposure for a short time will not make cancer of the lung—it takes many years of smoking. But it is said that if cancer has not already formed in the lung most of the membrane changes are reversible and cancer will not develop.

Most of the principles in this paper are based upon circumstantial evidence only and they need much study. They present opportunities for prevention of cancer of the lung. They are based on the fact that the nose and throat are most symptomatic of the respiratory tract. This study has been without financial or institutional assistance, but many physicians have been consulted and their help is acknowledged. •

REFERENCES

[1] Rusk, Harvey S.: Humidity and Vasoconstriction in Respiratory Disease. Rocky Mountain Medical Journal, April 1968, Vol. 65, No. 4.

[2] Rusk, Harvey S.: Headache and the Dry Nose. Headache, January 1969, Vol. 9, No. 4.

[3] Wynder, Ernest L.: The Biological Effects of Tobacco. Little, Brown and Company, Boston, 1955.

[4] Nealon, Thomas F., Jr.: Management of the Patient With Cancer. W. B. Saunders Company, 1965.

[5] Rusk, Harvey S.: Respiratory Cancer, a New Approach. Rocky Mountain Medical Journal, October 1964, Vol. 61, No. 10.

[6] Spain, David M.: The Association of Terminal Bronchiolar Carcinoma with Chronic Inflammation and Fibrosis of the Lungs. American Review of Tuberculosis and Pulmonary Diseases. October 1957, 76:558.

[7] Progress Against Cancer 1970. U.S. Department of Health, Education and Welfare.

Lethal midline granuloma*

A review of the literature

James E. Jarrett, MD, Missoula, Montana,
and Roger H. Lehman, MD, Milwaukee, Wisconsin

It is the purpose of this review to attempt to clarify the definition of this disorder by outlining the historical background, probable etiology, histopathology, clinical presentation and course, differential diagnosis, and treatment. Non-healing necrotizing granuloma of the upper respiratory tract may present as a localized disease or as part of a systemic granulomatous-angiitis syndrome. The classification of these lesions is confusing. They are commonly referred to as lethal midline granuloma, Wegener's granulomatosis, polyarteritis nodosa, and allergic angiitis or granulomatosis. Other terms used in classifying these lesions are malignant granuloma, granuloma gangraenescens, eosinohilic granuloma, and histiocytosis X.

POLYARTERITIS NODOSA has been accepted as a disorder of hypersensitivity. Wegener's granulomatosis has been generally accepted as a variant of polyarteritis nodosa. Both represent different positions in the necrotizing granuloma — angiitis disease spectrum. This spectrum is here represented graphically as two overlapping triangles illustrating degrees of variance of necrotizing granuloma and angiitis as one moves from the pure form (Fig. 1).

Lethal midline granuloma has not enjoyed general acceptance in this disease spectrum. This is in part due to confusion existing in the literature, and as already mentioned, confusion in the classification of a necrotizing upper respiratory lesion.

*From the Department of Otolaryngology, Marquette School of Medicine and Veterans Administration Center, Wood (Milwaukee), Wisconsin 53193.

History

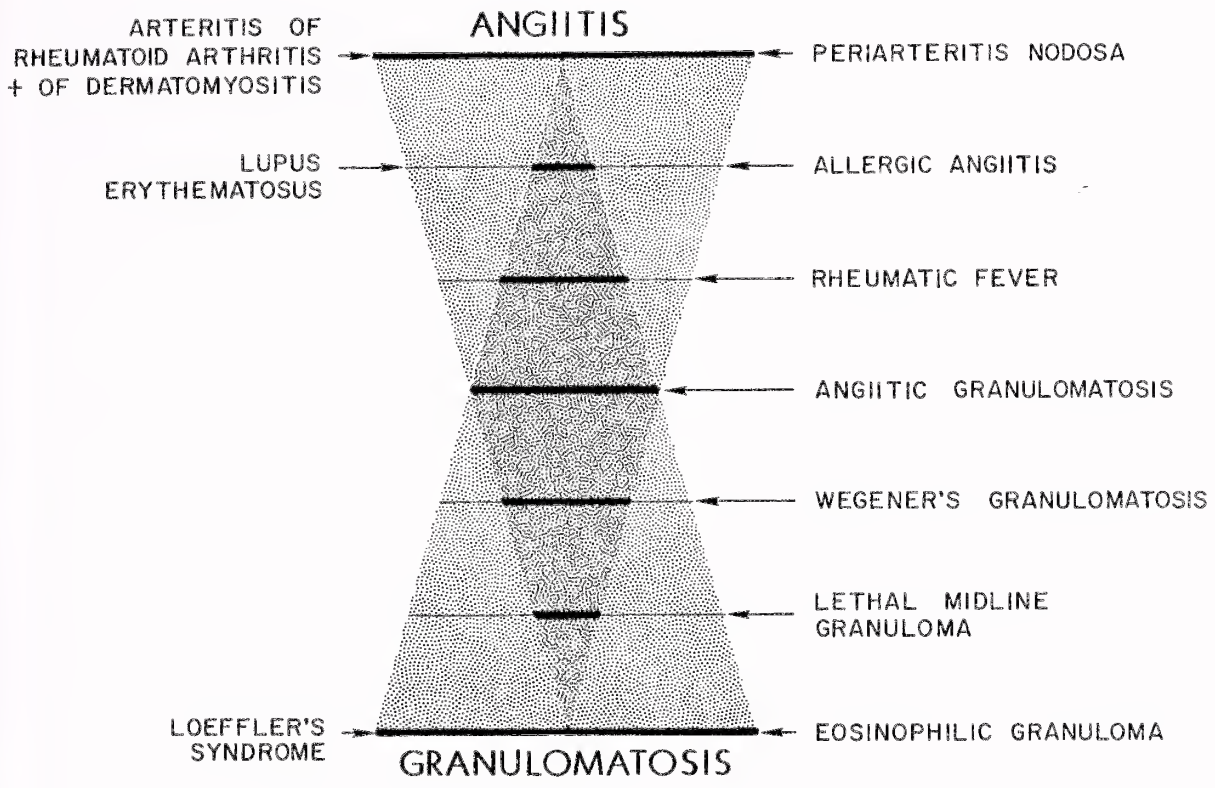
The first reported case of lethal midline granuloma was by McBride in 1896.[1] Although it contained no microscopic description, it has fostered the publication of a variety of other clinically typical cases, most of which are also lacking in complete autopsy and microscopic data.

In 1933 Stewart[2] reviewed ten cases of a lethal granuloma of the nose. This review included McBride's case and two cases by Wood.[3] Postmortem examinations were made in five patients and in only two of these was a description given of organs other than the primary upper respiratory tract lesion. None of these ten cases reported includes a microscopic report. Biopsies of the primary lesions were largely reported as non-specific inflammatory reactions or granulomatous tissue.

In 1939, Wegener[4,5] reported three cases of "rhinogenic granulomas" now commonly known as Wegener's granulomatosis. He observed that polyarteritis nodosa was a common finding in patients with this lethal granulomatous ulceration. He felt that the eliology of both was the same and that the upper respiratory tract lesions represented an unusual variety of polyarteritis nodosa with the nasal and paranasal lesions predominating.

In 1949, Williams[6] published a report on three patients with lethal granulomatous ulceration of the midline facial tissues and suggested that a dysfunction of the immune mechanism was the etiological basis of the lesions.

In 1959, Spear and Walker[7] presented the first thorough pathological report of a suspected case of lethal midline granuloma, and reviewed six other cases which had been thoroughly studied at autopsy. They used the



(Modified from Alarcon-Segovia, D. and Brown, A. L. Jr,: Classification and etiologic aspects of necrotizing angiitides: an anolytical approach to a condensed subject with a critical review of the evidence for hypersensitivity in poeyarteritis nodosa. Mayo Clin. Proc. 39:205, 1964)

Fig. 1. Classification of angiitic and granulomatous syndromes.

term "granuloma gangraenescens." Walton,[9,10] in reviewing these cases, felt they were describing a lymphoma which he referred to as reticuloendothelial sarcoma. He reported five cases of this type and collected 20 additional cases from the literature. The histological and eventual clinical features of this group were those of malignancy.[9,11,12,13]

On the basis of autopsied cases, Walton,[10,14] in 1959, compared the clinical and pathological features of Wegener's granulomatosis (54 cases) with lethal midline granuloma (31 cases).

Etiology

Current opinion favors a hypersensitivity reaction as the probable etiology, although the antigen or antigens have not been identified, and the sensitizing mechanism has not been determined.[15,16,17] It is accepted that necrotizing granulomatosis, angiitis, and glomerulitis, that are the three basic lesions of this necrotizing granuloma-angiitis disease spectrum may all be produced by hypersensitivity.[18,19] Also, under various influences a given body tissue may become altered in such a way that it becomes capable of inciting the formation of a sensitizing anbibody specific for that tissue and capable of injuring that tissue. It is also accepted that different and separate reactions such as urticaria, asthma, purpura, eczema, vasomotor rhinitis, pneumonitis, arthritis or gastrointestinal disturbances may occur.

Williams[20] postulated that the preference for localization of lesions to the respiratory tract was due to the large area of vascular mucous membrane with the exposure to potential antigens. He felt that dysfunction of the immune mechanism might occur as the result of hyperimmunity and that this defect is in the intracellular enzyme system. This defect causes deficient catabolism of the potential antigen and, in turn, alters the intracellular chemistry of the cells. These cells then become hypersensitized and on activation produce the hypersensitivity reaction.

Histopathology

There is a dense accumulation of lymphocytes, plasma cells, histiocytes, and eosinophils, often most dense about vessels. Necrosis may extend to considerable depths and deeper layers show granulation tissue. Primary angiitis is usually not apparent in biopsy specimens but it may be evident on postmortem examination. Multinucleated giant cells may occur. There is no evidence of neoplasia.[21,22]

Clinical Presentation

Non-healing necrotizing granulomatosis of the upper respiratory tract is characterized by progressive destruction of tissue, usually terminating fatally due to fatigue and exhaustion, hemorrhage or secondary infection. The tissue necrosis may be marked with sloughing of soft tissue, bone destruction, and a markedly fetid odor. Pain is usually not a major symptom. Trauma or surgery may accelerate the process. Cultures may reveal a variety of gram-negative and gram-positive organisms. The onset is commonly insidious with nonspecific upper respiratory symptoms. The prodromal upper respiratory symptoms may have existed for many years as a chronic sinusitis, nasal stuffiness, watery or serosanguineous rhinitis, otorrhea, cough or hoarseness.

The period of active disease is characterized by a fulminant course progressing to the terminal phase and death in weeks to years—with an average of ten months. Malaise, fatigue and constitutional symptoms may be out of proportion to the clinical signs of disease. Irregular fever and weight loss are common. Leukocytosis is moderate. Blood eosinophilia may occur in those cases with pulmonary involvement who have not been treated with steroids. The sedimentation rate and serum globulin may be increased. The patient may present with purulent foul-smelling nasal discharge and nasal obstruction with crusting mucosal ulcerations. There may be edema and inflammation of facial structures with proptosis. Septal perforation and epistaxis are not uncommon. Lesions of the hard palate, tongue, pharynx, antrum and middle ear may occur (Table 1).

Differential Diagnosis

Many different diseases and types of stimuli may indicate granulomatosis and angiitis (Table 2). The diagnosis of lethal

TABLE 1

Patients with Lethal Granuloma in English Literature Substantiated by Postmortem Examinations, 1955-1968

Author	*Sex*	*Age*	*Duration*	*Primary Lesion*	*Other Lesions*
(1-6) Reviewed by Walton[10]					
Friedman	F	28	—	Nose, Sinuses, Palate	None
Lane & Dood	M	13	7 mos.	Nose, Palate, Pharynx	Bronchopneumonia
Paterson	M	49	2 mos.	Nose, Palate	Lobar and Bronchopneumonia
Pfeiffer	M	47	24 mos.	Nose, Palate, Orbit	None
Gertler, et al	M	48	—	Nose, Sinuses, Palate, Pharynx	Bronchopneumonia, "Nephrosis"
Singh, et al	F	28	20 mos.	Nose, Sinuses, Palate	None
(7) Walton[10]	M	61	5 mos.	Sinuses, Palate, Pharynx	None
(8) Walton[10]	F	23	4 mos.	Sinuses, Palate, Pharynx	Bronchopneumonia
(9) Walton[10]	M	62	*2 wks.	Palate, Pharynx	Bronchopneumonia
(10) Burston[23]	M	42	9 mos.	Nose, Sinuses, Ears	Granulomata in meninges, prostate and one kidney
(11) Burston[23]	M	32	4 mos.	Sinuses, Palate	None
(12) Hamilton[40]	M	26	6 mos.	Sinuses, Palate	Lung abscess, GI mucosal ulcerations
(13) Moo[33]	M	34	4 mos.	Nose, Palate	Bronchopneumonia
(14) Robertson[34]	F	30	8 mos.	Sinuses, Ulceration of hard palate	None
(15) Blaisdell[41]	M	46	6 mos.	Sinusitis, Ulceration of septum	None
(16) Carrington & Liebow[42]	M	72	5 mos.	Pharyngeal ulcers	Renal granuloma, lung granulomata, intestinal ulcers
(17) Blatt[28]	F	50	48 mos.	Sinusitis, Destruction of septum and turbinates, laryngeal granuloma	Pulmonary granulomata
Sex M/F—3.4/1		Average	10.8 mos.		
		Mean	6 mos.		
Age—13 to 72 average—41 mean—42					

*Death due to cardiac disease

TABLE 2
Differential Diagnosis of Granulomatous Lesions of the Upper Respiratory Tract

1. Tuberculosis
2. Syphilis
3. Leprosy
4. Anthrax
5. Blastomycosis
6. Coccidioidomycosis
7. Rhinosporidiosis
8. Yaws
9. Leischmaniasis
10. Eosinophilic granuloma
11. Histiocytosis X
12. Lymphoma
    a. Polymorphic reticulosis—Eichel[11]
    b. Granuloma gangraenescens/malignant reticulosis—Russel[43]
    c. Reticuloendothelial sarcoma—Walton[9]

midline granuloma is made largely by exclusion. The histologic lesion is, by itself, nonspecific and exclusion of infectious, neoplastic or allergic etiology must be made. Appropriate bacteriological examinations should differentiate the infectious disease.

Walton,[9] Eichal,[11] Russel,[13] and Burston[23] report the difficulty one may encounter in differentiating neoplasms of the lymphoma group from lethal granuloma (Table 1). The clinical forms may be identical. Initial biopsies are commonly not deep enough to enable a true histologic diagnosis. The categories of malignant granuloma and granuloma gangraenescens have developed from reports on such tumors. Most cases initially diagnosed as lethal midline granuloma later, at autopsy, proved to be lyphomas, syndromes of Wegener's granulomatosis or polyarteritis nodosa.

Present information from the completely studied cases points to a great variability in clinical presentation and location of lesions. It also refutes the assumption that lethal midline granuloma has a more idolent course than Wegener's granulomatosis. The differences in sex incidence reported for Wegener's granulomatosis and lethal midline granuloma are probably not significant statistically. The differences in histopathology are more likely due to stage and location of the lesion than to basic differences in etiology of the two syndromes.

Intermediate and mixed forms of this disease spectrum are frequently reported in the literature as Wegener's granulomatosis or

THE EMORY JOHN BRADY HOSPITAL

401 Southgate Road **COLORADO SPRINGS, COLORADO 80906** **MElrose 4-8828**

E. JAMES BRADY, M.D., *Medical Director*

CAMPBELL F. RICE, *Superintendent*

For the care and treatment of Psychiatric disorders.

Individual and Group Psychotherapy and Somatic Therapies.

Occupational, diversional and outdoor activities.

X-ray, Clinical Laboratory and Electroencephalography.

Francis A. O'Donnell, M.D.
Robert W. Davis, M.D.
Richard L. Conde, M.D.
Paul A. Draper, M.D.
Charles W. McClellan, M.D.
James E. Edwards, M.D.

polyarteritis nodosa. Carrington and Liebow[24] report 16 cases of "limited forms of angiitis and granulomatosis of the Wegener's type" which lack the complete triad of findings. Two of these cases had upper respiratory tract lesions and one of these had marked tissue eosinophilia.

Diverty and Olson[25] report pulmonary infiltration by x-ray[26,27] and blood eosinophilia in 10-30 per cent of cases of polyarteritis nodosa. The reported incidence of pulmonary involvement in polyarteritis nodosa was from 18 to 29 per cent in different series in the literature,[8,25] Rose and Spencer[8] noted blood and tissue eosinophilia in over 50 per cent of cases of polyarteritis nodosa with pulmonary involvement.

Therapy

In general, the treatment of lethal granuloma has not been successful. There are no reports of successful surgical management. Antibiotics have been of some benefit in controlling secondary infection and in combating sepsis, but they have had no effect upon the primary disease process.

Steroids have received some enthusiasitic acclaim. Blatt[28] reviewed the use of steroids in lethal granuloma and Wegener's granulomatosis and reported a case with radiographic resolution of pulmonary lesions and clearing of renal damage following institution of steroid therapy. He concluded that steroids retard but do not halt the destructive process. A similar conclusion was reached following a study of steroid therapy in polyarteritis nodosa.[29] There are several cases of suspected Wegener's granulomatosis which responded to steroids and were still living at the time of the reports.[25,30] Hollander[31] et. al. collected 26 cases of Wegener's granulomatosis treated with steroids and found the average survival to be twelve and one-half months. Walton's[14] series without steroid therapy survived only five months.

There are numerous reports of favorable results with x-ray therapy,[9,13,32,33,34,35] However, there are no reports of confirmed cases responding to irradiation, which have been followed to the patient's demise. It is probable that the few cases reported, which improved under x-ray therapy, will eventually prove to be radiosensitive neoplasms.

Assuming that a hypersensitivity mechanism is etiologic in this disorder, recent workers have attempted treatment with immunosuppressive agents. Clinical improvement with control or regression of respiratory and/or renal lesions has been reported with Imuran,[36] Chlorambucil, [31,37] Cyclophosphamide (cytoxan)[38] and Imuran and Duazomycin A.[39]

Definitive therapy will probably await confirmatory evidence of the etiology of this disorder. If a hypersensitivity phenomenon or abnormality of the immune mechanism is the cause, refined therapy with steroids and immunosuppressive agents may deserve a more important role in the therapeutic armamentarium. If an antigen can be identified, avoidance of exposure and hyposensitization may be useful.

Summary

Lethal midline granuloma is a non-healing, necrotizing non-neoplastic lesion of the upper respiratory tract. It is a disorder characterized by rapidly progressive destructive ulceration terminating fatally with hemorrhage, sepsis or exhaustion.

Only 17 cases of lethal midline granuloma with primary upper respiratory tract lesions confirmed by autopsy are reported in the English Literature since Godman and Churg[44] established the diagnostic criteria for Wegener's granulomatosis in 1954. Many lesions initially diagnosed as lethal midline granuloma at autopsy prove to be Wegener's granulomatosis, polyarteritis nodosa, or neoplasms.

Lethal midline granuloma is a disorder in the granulomatosis-angiitis disease spectrum. The clinical course may progress to disseminated granulomata and vascular lesions, thus evolving into the more common Wegener's syndrome.

The basic lesion is probably a capillaritis which is the result of a dysfunction of the immune mechanism.

Although the etiology is felt to be hypersensitivity confirmatory evidence is lacking.

Adequate and repeated biopsies are necessary to make a diagnosis and to rule out a neoplastic process.

The current therapeutic approaches are leaning toward the use of steroids and other immunosuppressive agents. •

REFERENCES

[1] McBride, D.: A case of rapid destruction of the nose and face. J. Laryng., 12:63-66, 1897.

[2] Stewart, J. D.: Progressive lethal granumatous ulceration of the nose. J. Laryng., 48:657-701, 1933.

[3] Woods, R.: Malignant granuloma of the nose. Brit. Med. J., 2:65, 1921.

[4] Wegener, F.: Über generalisierte septische Gefässerkrankungen. Verh. Deutsch Ges. Path., 29:202-209, 1936.

[5] Wegener, F.: Über eine eigenartige rhinogene Granulomatose mit besonderer Beteiligung des Arteriensystems and der Nieren. Beitr. Path. Anat., 102:36-68, 1939.

[6] Williams, H. L.: Lethal granulomatous ulceration involving the midline facial tissue. Ann. Otol., 58:1013-1054, 1949.

[7] Spear, G. S., and Walker, W. G.: Lethal midline granuloma (granuloma gangraenescens), at autopsy. Bulletin of Johns Hopkins Hospital, 99:313-325, 1956.

[8] Rose, G. A., and Spencer, M.: Polyarteritis nodosa. Quart. J. Med., 26:43-81, 1957.

[9] Walton, E. W.: Peticulo-endothelial sarcoma of the nose and palate (granuloma gangraenescens). J. Clin. Nutr., 13:279-286, 1960.

[10] Walton, E. W.: Non-healing granulomata of the nose. J. Laryng., 73:242-260, 1959.

[11] Eichel, B. S., Harrison, E. G., Devine, K. D., Scanlon, P. W., and Brown, H. A.: Primary lymphoma of the nose including a relationship to lethal midline granuloma. Amer. J. Surg., 112:597-605, 1966.

[12] James, A. E., Jr.: Malingant lyphoma as a cause of midline granuloma. Arch. Intern. Med., 115:200-202, 1965.

[13] Wildermuth, O.: Lethal midline granuloma. Radiology, 78:269-271, 1962.

[14] Walton, E. W.: Giant cell granuloma of the respiratory tract (Wegener's granulomatosis). Brit. Med. J., 2:265-270, 1958.

[15] Paronetto, F., and Strauss, L.: Immunocytochemical observations in periarteritis nodosa. Ann. Intern. Med., 56:289-296, 1962.

[16] Piomelli, S., Stefanin, M., and Mele, R. M.: Antigenicity of human vascular endothelium and lack of relationship to the pathogenesis of vasculitis. J. Lab. Clin. Med., 54:241-256, 1959.

[17] Hume, D. M., Merrill, J. P., Miller, B. F., and Thorn, G. W.: Experiences with renal homotransplantation in the human; report of 9 cases. J. Clin. Invest., 34:327-382, 1955.

[18] Rich, A. R., and Gregory, J. E.: The experimental demonstration that periarteritis nodosa is a manifestation of hypersensitivity. Bulletin of Johns Hopkins Hospital, 79:65-88, 1943.

[19] Rich, A. R.: Hypersensitivity in disease with especial reference to periarteritis nodosa, rheumatic fever, disseminated lupus, erythematous and rheumatoid arthritis. Harvey Lect., 42:106-147, 1947.

[20] Williams, H. L., and Williams, R. I.: Causes of confusion as to meaning of allergy to the otolaryngologist. J. Lancet. Part I, 88:37-41; Part II, 88:81-86; Part III, 88:96-98, 1968.

[21] Brown, H. A., and Woolner, L. B.: Findings referable to the upper part of the respiratory tract in Wegener's granulomatosis. Ann. Otol., 69:810-828, 1960.

[22] Friedman, I.: Midline granuloma. Proc. Roy. Soc. Med., 57:289-297, 1964.

[23] Burston, H. H.: Lethal midline granuloma; is it a pathological entity?Laryngoscope, 69:1-43, 1959.

[24] Elias, P. M., and Epstein, W. L.: Ultrastructural observations on experimentally induced foreign-body and organized epithelioid cell granulomas in man. Amer. J. Path., 52:1207-1216, 1968.

[25] Divertie, M. B., and Olsen, A. M.: Pulmonary infiltartion associated with blood eosinophilia (P.I.E.): A clinical study of Loeffler's syndrome and of periarteritis nodosa with P.I.E. syndrome. Dis. Chest., 37:340-349, 1960.

[26] Epstein, W. L., and Kligman, A. M.: Pathogenesis of eosinophilic pneumonitis (Loeffler's syndrome). J.A.M.A., 162:95-97, 1956.

[27] Tschumy, W.: Pulmonary infiltration with eosinophilia (Loeffler's syndrome) due to smoke inhalation: Report of a case and comment on pathogenesis. Ann. Intern. Med., 49:665-672, 1958.

[28] Blatt, I. M., Holbrooke, S. S., Rubin, P., Furstenberg, A. C., Maxwell, J. H., and Schull, W. J.: Fatal granulomatosis of the respiratory tract (lethal midline granuloma—Wegener's granulomatosis). Arch. Otolaryng., 70:707-757, 1959.

[29] Report to medical research council by the collagen diseases and hypersensitivity panel—treatment of polyarteritis nodosa with cortisone; results after three years. Brit. Med. J., 7:1399-1400, 1960.

[30] Malcomson, K. G.: Wegener's giant cell granulomatosis treated with corticosteroids. J. Laryng., 80:640-645, 1966.

[31] Hollander, D., and Manning, R. T.: The use of alkylating agents in the treatment of Wegener's granulomatosis. Ann. Intern. Med., 67:393-398, 1967.

[32] Toma, G. A.: Lethal midline granuloma and Wegener's granulomatosis. J. Laryng., 82:129-139, 1968.

[33] Moo, E. W. A.: Lethal midline granuloma of the face. Oral. Surg., 23:578-585, 1967.

[34] Robertson, D. M., and Milliken, J. A.: Malignant granuloma of the nose. Canad. Med. Ass. J., 79:745-748, 1958.

[35] Dickson, R. J., and Cantag, D. M. R. T.: Radiotherapy of lethal midline granuloma therapeutics. J. Chronic Dis., 12:417-427, 1960.

[36] Bouroncle, B. A., Smith, E. J., and Cuppage, F. E.: Treatment of Wegener's granulomatosis with imuran. Amer. J. Med., 42:314-318, 1967.

[37] McIlvanie, S. K.: Wegener's granulomatosis—successful treatment with chlorambucil. J.A.M.A., 197:130-132, 1966.

[38] Greenspan, E. M.: Cychophosphamide-prednisone therapy of lethal midline granuloma. J.A.M.A., 193:162-163, 1965.

[39] Kaplan, S. R., Hayslett, J. P., and Calabresi, P.: Treatment of advanced Wegener's granulomatosis with azathiprine and duoazomycin A. New Eng. J. Med., 278:239-244, 1968.

[40] Hamilton, M. K., Sherrer, E. L., and Schwartz, D. S.: Lethal midline granuloma—report of a case. J. Oral Surg., 23:514-521, 1965.

[41] Blaisdell, W. B.: Fatal midline granulomatosis—a case report. J. Maine Med. Ass., 52:364-365, 1961.

[42] Carrington, C. B., and Liebow, A. A.: Limited forms of angiitis and granulomatosis of Wegener's type. Amer. J. Med., 41:497-527, 1966.

[43] Russell, G. M. C. J., and Schillings, P. M. H.: Granuloma gangraenescens, a fatal disease of the face. Pract. Otorhinolaryng., 28:81-94, 1966.

[44] Godman, V., and Churg, J., Wegener's granulomatosis. Arch. Path., 58:533-553, 1954.

Rubella vaccination in the puerperium*

James J. Delaney, MD, Denver

There is disagreement regarding the safety and efficacy of current rubella immunization programs. Here is a study of a new approach.

AVAILABILITY OF THE currently licensed rubella vaccines is supposed to eliminate congenital rubella as a problem for the medical profession. Unfortunately the availability of these vaccines has caused more problems than it has solved. Following the first year's experience with the vaccines, some serious questions are being raised about current immunization programs and the safety and efficacy of the available vaccines.[1] Some authorities feel that susceptible women in the childbearing age should be the primary target of immunization programs and have suggested that all women be screened for the presence of rubella antibodies and that all susceptible women be vaccinated.[2]

However, the morbidity following rubella vaccination in adult women is fairly high and it has been suggested by the distributor that vaccination in the early puerperium might result in a reduction in the incidence of side effects. It also has been suggested that the routine screening for rubella antibodies be done as part of the prenatal work-up. This paper reports the results of such a program carried on at the University of Colorado Medical Center between July 1969 and July 1970.

Materials and Methods

All women seen in the Obstetrics Outpatient Clinic during the first or second trimester of pregnancy who were likely to have uncomplicated deliveries at our hospital were screened for the presence of rubella antibodies. Blood was drawn in the usual manner. Plasma was separated by centrifugation and stored at -20° C. At approximately monthly intervals all accumulated samples were packed in dry ice and shipped to the Smith, Kline and French laboratory in Philadelphia, Pennsylvania, where rubella hemagglutination-inhibition antibody titres were determined. A second sample was obtained prior to vaccination on all reported sero-negative women to confirm the original report. Sero-negative women with uncomplicated intrapartum and postpartum courses received 0.5 ml. of Cendivax† subcutaneously within seventy-two hours following delivery. Post-vaccination blood was handled in the same manner as pre-vaccination bloods, and was drawn between one and seven months postpartum with most specimens obtained at the six weeks postpartum examination.

TABLE 1
HAI Titre 6 weeks after Vaccination
Study Patients

Antibody Titre	Number of Patients
Neg.	4
8	None
16	3
32	8
62	12
128	2
256	1
Total	30

Results

1,016 patients were screened and 97 (9.5 per cent) were found to have no detectable rubella antibody titres. Fifty-three patients were vaccinated and of these 30 (56.6 per cent) were followed for six weeks or longer. The antibody response following vaccination is graphically shown in Table 1. Four (13.3 per cent) patients had no detectable hem-

*From the University of Colorado Medical Center, Denver. The author is Assistant Professor, Department of Obstetrics and Gynecology.

Supported by a grant from the Smith, Kline and French Company, Philadelphia, Pennsylvania.

†Live attenuated rubella virus vaccine supplied by Smith, Kline and French Company.

TABLE 2

HAI Antibody Titre 6 weeks after Vaccination Control Patients

Prevaccination Titre	No Change	1 tube dilution	2 tube dilution
8		2	
16	2		
32		3	1
64		3	1
128	4	4	1
256	1	1	
512	2	2	
Totals	9	15	3

agglutination-inhibition antibodies at the time of their postpartum examination. Fifteen (50 per cent) patients had a four fold or greater rise in antibody titre. Forty-three seropositive patients served as controls also being vaccinated within 72 hours following delivery. Of these, 27 (62.8 per cent) patients were followed for six weeks or longer.

The anamnestic response to vaccination is shown in Table 2. Only three patients had a significant change in titre.

There was no observed or reported morbidity in the control group and only insignificant morbidity in the vaccinated group. One patient developed a low grade fever on the day following vaccination which resolved without treatment. Four (13.3 per cent) patients had a transient localized or generalized rash. One patient's rash was thought to represent contact dermatitis. The other patients had an asymptomatic rash which disappeared in 48-72 hours without treatment. No other side effect was noted in either group.

Three patients originally reported as seronegative were subsequently found to have rubella antibodies and these were included in the control group. It is thought that these discrepancies in titres represented a laboratory or technical error rather than an intercurrent rubella infection. None of the four had been exposed to rubella, had any symptoms suggestive of rubella or delivered suspect infants. Three of the four also had low titres at the time of vaccination.

Comment

The first year's experience with the available rubella vaccines has led many epidemiologists to question the safety and efficacy of both the vaccines and the programs set up to administer them. The primary questions being asked are whether the attenuated virus in the vaccines is teratogenic, whether vaccination actually confers immunity and whether the immunity is permanent. The first question may never be answered because it is difficult to design a meaningful experimental protocol. At this writing only one study has been published regarding fetal risk following vaccination.[3] This involved ten pregnancies in which the two HPV-77 vaccines were used. We have had a limited experience using the Cendehill vaccine which has not been reported yet. Since the fetal risk following vaccination in pregnancy remains questionable, most physicians feel that termination of the pregnancy is indicated if the mother has been vaccinated just prior to or during the pregnancy. This doubt and confusion has led to a far greater pregnancy wastage following vaccination than we ever had when dealing with the naturally occurring disease.

The second question results from recent studies involving non-immune, immune and vaccinated subjects exposed to natural infection in which the vaccinated subjects had a greater anamnestic antibody response than did the groups possessing natural immunity.[4,5]

The answer to the third question must await the passage of time. If immunity conferred by vaccination is not permanent, the possibility exists of having a large population of women in the future who will be susceptible to rubella and its well known sequelae. Since these questions will not be answered in the next few years, we must consider the problem of what to do to prevent congenital rubella using our present tools without resorting to abortion in every doubtful case. The approach described in this report seems reasonable and can be incorporated into any practice. The availability of an inexpensive, reliable screening procedure for detecting rubella antibodies is the major obstacle to such an approach in many communities.

Once susceptibility to rubella has been determined, the physician has a choice of 3 vaccines to use: The Phillips Roxane vaccine (also sold by Parke Davis) is an HPV-77 dog kidney strain. The Merck vaccine is an HPV-77 duck embryo strain. The Smith, Kline and French vaccine is a rabbit kidney strain.

All three are live attenuated virus vaccines and have major shortcomings. They produce different incidences of side effects and different degrees of antibody response. Both of these effects seem to be related to the degree of attenuation of the virus used. The Phillips Roxane vaccine has the highest incidence of side effects, but produces the highest antibody titres while the Smith, Kline and French vaccine produces the lowest incidence of side effects and the lowest antibody titres. The Merck vaccine is intermediate in comparison with the other two. Some interesting observations were made during field trials conducted prior to licensing the present vaccines.[6] Regardless of the vaccine used, immunity as measured by the development of antibodies was virtually 100 per cent in all groups tested.

The incidence of side effects was not as uniform. There were virtually no side effects in children or the few adult males tested, but there was a significant incidence of side effects in adult women. These side effects were similar to those seen in the natural occurring disease with arthritis, arthralgia and joint effusions being the most bothersome.

In spite of the questions concerning the efficacy of the rubella vaccines, we have come to the conclusion that adult women should be screened for the presence of rubella antibodies and recommend that women who are susceptible to rubella be vaccinated. We are vaccinating non-pregnant women with negative rubella titres after determining that they are not pregnant. We are also continuing the program reported in this paper as a routine part of our obstetrical care. Every postpartum vaccinated patient should have a repeat rubella HAI titre done six to eight weeks after vaccination to confirm the presence of antibodies. On the basis of this study we can expect approximately 10 per cent of women vaccinated in the puerperium to develop no detectable HAI antibodies to rubella at the time of their postpartum examination. Such patients should be revaccinated. Similar studies[7,8,9,10] have demonstrated less than a 100 per cent response to vaccination as measured by HAI titres, but conversion may have been delayed or other antibodies such as neutralizing or complement fixation may be detectable. Because of the difficulty in obtaining other antibody titres, we consider the lack of HAI antibodies to mean the patient is still susceptible to rubella and recommend revaccination.

The degree of antibody response to vaccination may or may not be significant in conferring immunity. Only time and experience will enable us to answer that question. In the meantime we have decided to use the Cendehill strain of rubella vaccine in adult women because of its lower incidence of side effects.

Summary

Between July 1969, and June 1970, 1,016 pregnant women were screened for the presence of HAI rubella antibodies. 9.5 per cent of the patients had no demonstrable antibodies. Fifty-three such women were vaccinated within 72 hours of delivery with the Cendehill strain of rubella vaccine. Of thirty patients who were followed for 6 weeks or longer, four failed to develop immunity, four developed an asymptomatic rash and one patient developed a low grade fever which resolved without treatment. Postpartum vaccination with rubella vaccine is recommended for susceptible patients, but the efficacy of such a program remains to be proved. •

REFERENCES

1 The Medical Letter, 12:91-92, 1970.
2 Bowes, W. A., Gibson, J. L., Leibovitz, A., and Palin, W. J.: Rubella Antibody Screening in a Prenatal Clinic Using the Indirect Fluorescent Method. Obstet. Gynec. 35-7-11, 1970.
3 Vaheri, A., Vesikari, T., Oker-Blom, N., Seppola, M., Veronelli, J., Robbins, F. C., and Parkman, P. D.: Transmission of Attenuated Rubella Vaccines to the Human Fetus. Amer. J. Dis. Child, 118:243-246, 1969.
4 Chang, T. W., DesRosiers, S., and Weinstein, L.: Outbreak of Rubella in a Vaccinated Population. New Eng. J. Med., 283:246-248, 1970.
5 Horstmann, D. M., Leibhaber, H., LeBouvier, G. L., Rosenberg, D. A., and Holstead, S. B.: Rubella Reinfection of Vaccinated and Naturally Immune Persons. New Eng. J. Med., 283:771-778, 1970.
6 International Symposium on Rubella Vaccines. Edited by Regamey, R. H., deBarbieri, A., Hennessen, W., Ikic, D., and Perkins, F. T. S. Larger, Basel Switzerland and New York, 1969.
7 Farquhar, J. D.: Results with the Cendehill Rubella Vaccine in Postpartum Women. Obstet. Gynec., 35:841-843, 1970.
8 Horstmann, D. M., Leidhaber, H., and Kohorn, E. I.: Postpartum Vaccination of Rubella Susceptible Women. Lancet II (7681):1003-1006, 1970.
9 Webb, D. A.: A Clinical Trial of "Cendivax" Rubella Vaccine in Postpartum Women. The Medical Officer, 124:59-61, 1970.
10 Kelley, C. S., Gibson, J. L., Wiliams, C. S., and Leibovitz, A.: Postpartum Rubella Immunization: Results with the HPV-77 Strain. Obstet. Gynec., 37:338-341, 1971.

Dupuytren's contracture*

Analysis of 100 consecutive surgical cases

Robert L. Horner, MD, and Floyd Bralliar, MD, Denver

The crippling effects of Dupuytren's contracture can be relieved if surgery is done before the interphalangeal joints have fixed contractures of more than 15 degrees. Surgery should not be done to remove nodules but only to eliminate deformities that interfere with function.

IN SPITE OF MANY recent studies of Dupuytren's contracture,[1,4,8] it remains almost as poorly understood as it was one hundred and forty years ago when described by Dupuytren.[2] It is obvious that there will be no rational preventive measure until its cause is known, but it is hoped that review of the cases that we have treated over a ten year period will help to show what degree of improvement can be anticipated after surgery. Most important, we hope to show when not to operate.

Material

In our series of one hundred cases we found males to outnumber females, two to one. The youngest patient was twenty years of age; the oldest was eighty-one years old with an average of about fifty-five years. (Fig. 1) We have not noticed an increased incidence of epilepsy, chronic alcoholism or tuberculosis in our patients, but have noticed a frequent association of involvement of the plantar fascia. Most patients show involvement in several areas. (Fig. 2) Two-thirds of the patients had involvement of the ring finger and about one-half had the disease in the fascia at the base of the small finger.

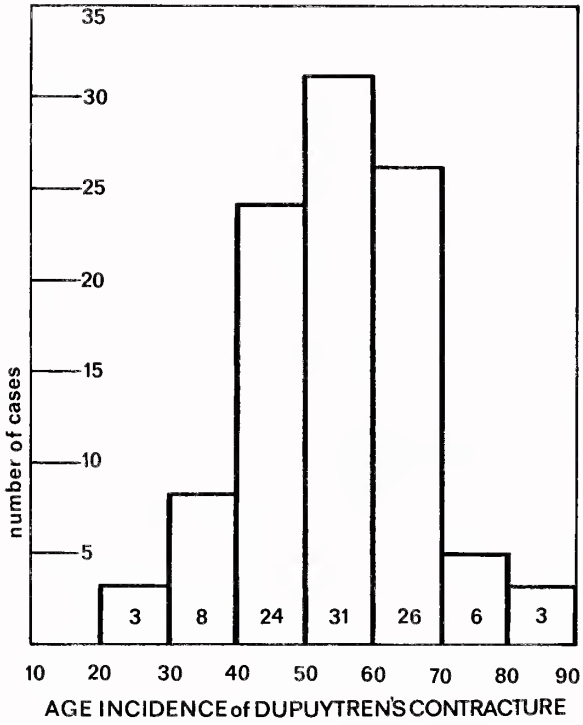


Fig. 1. Graph showing the age of decades of 100 patients we have treated for Dupuytren's contracture.

The non-dominant hand was affected as often as the dominant hand. Only a few of our patients regularly performed manual labor, and most lacked a definite history of trauma to the involved area.

Most of the men that we treated had no familial history of the disease, but half of the thirty-three women had known of a male relative with the disease.

There are typical stages,[5] that can be seen in the hand. Nodules (Fig. 3) in the ulnar portion of the palm are the first findings. They are round, firm, tumor-like masses seen typically at the base of the ring or small fingers. Frequently, they are slightly tender with some redness of the overlying skin. The

*From Porter Memorial Hospital and the Hand Service, Denver General Hospital, Denver, Colorado. Presented at the Annual Meeting of The Western Orthopedic Association in Portland, Oregon, October 5, 1970.

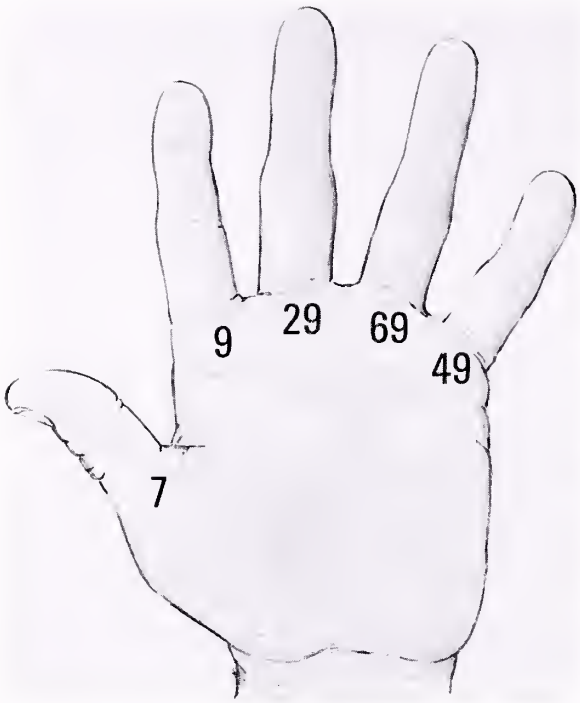


Fig. 2. Composite drawing to illustrate the total number of digits involved in either hand in 100 patients with Dupuytren's contracture.

patient often has a concern for cancer, but the clinical appearance is typical enough that biopsy is not indicated. Within a few months, "cords" develop as linear thickening of the palmar and digital fascia. These are non-tender, but will begin to limit extension of the finger (Fig. 4). Many times there is "pitting (Fig. 5) with fibrous tissue strands pulling the skin down towards the fascia resulting in dimpling of the skin.

Proper management becomes a matter of balancing the inconvenience of the disease against the possible benefits of treatment. The mere presence of the disease is certainly no indication for surgery. Occasionally, an early palmar nodule will be painful, but again, one should not be forced into a decision to operate, because the pain will usually subside in a few months and the reaction stimulated by the surgery may be disabling.

Treatment

Three basic types of surgical care can be discussed. They are fasciotomy, limited fasciectomy and radical fasciectomy.

Fasciectomy was the treatment recommended by Dupuytren in 1832.[2] Fasciectomies were then progressively recommended

Fig. 3. Visible nodule in the distal palm at the base of the right ring finger of a fifty-three year old lady with early Dupuytren's contracture.

Fig. 4. Illustration of a seventy-nine year old woman with typical involvement with a flexion contracture of the metacarpal-phalangeal joints and interphalangeal joints.

until twenty years ago[6,7] when radical fasciectomies were considered the best treatment, with removal of as much of the palmar fascia as possible. Complications that were seen, such as hematoma formation and joint stiffness and the occasional progression of the disease even after radical fasciectomy, have resulted in a trend in recent years back to more limited surgery.

Luck[5] again popularized fasciotomies in 1959. Fasciotomy can only be safely used in the palm because the digital nerves are too easily damaged out in the fingers. It is not effective against the disabling interphalangeal flexion contractures.

Limited fasciectomies,[3] excising only the involved tissues, have resulted in satisfactory improvement with fewer complications. There is no need to remove the uninvolved

fascia. It is not even necessary to remove the thickened tissue proximal to the mid-palm since it does not affect finger motion. The transverse fibers of the fascia are not involved and they can be left intact over the neurovascular bundles in the palm. Avoiding this area will prevent much of the post-operative bleeding that could result in hematoma formation.

In a radical fasciectomy an attempt is made to remove all of the palmar fascia but this is technically impossible. Even if it could be done, it would be no guarantee that further progression would not occur, and the complications of this procedure are greater.

The surgical treatment of Dupuytren's contracture is essentially the dissection of the digital nerves, as is true of much of hand surgery. They must be visualized and the contracted fascia excised. In the palm, this is usually no problem, but in the finger the nerves can be drawn past the median line of the digits by diseased tissue. Unless the digital nerves are visualized, they can be easily severed.

There are basically two different types of incisions that can be used, transverse or longitudinal. A longitudinal incision, in line with the contracting cord, can then be modified by multiple Z-plasties. Removal of the fascia is effective in relieving the metacarpal-phalangeal joint contractures. At the proximal interphalangeal joint level there is also involvement of the retinacular ligaments and secondary involvement of the volar plate and the collateral ligaments.

Fig. 5. Right palm of a forty-three-year old man showing "pitting" where strands of involved palmar fascia have drawn the skin inward causing indentations.

Hemostasis is of utmost importance. The wound should not be closed if the bleeding cannot be controlled completely. An electrocautery is helpful, but occasionally, some oozing will persist in spite of meticulous care. It is occasionally better to follow surgery with moist dressings and then perform a delayed closure in a day or two. The tourniquet should always be released before the wound is closed. After hemostasis has been obtained, it should be reinflated before skin closure and not let down again until dressings are in place. Drains, even with suction, cannot be relied upon to prevent hematomas. The dressing should be changed one or two days post-operatively and if the palm has lost its normal concavity, a hematoma has occurred and should be treated. This usually means return to the operating room for thorough evacuation under anesthesia. If this is necessary, it may be better to leave the wound open instead of closing it again.

Elevation is imperative after surgery. A sling to suspend the hand across the chest is not adequate. The hand should be above the elbow and the elbow above the shoulder for most of the time during the first five days. In bed, this can be maintained with a suspension sling to an intravenous stand. While walking, it means that the hand must be carried above the level of the head frequently with the hand resting directly on the head.

As soon as wound healing will permit, active exercises should be performed on a regular basis. The range of motion should be checked regularly and dynamic splint used as necessary.

Results

Uniformly, the metacarpal-phalangeal joint flexion contractures were relieved by surgery. Preoperatively, our patients had flexion contractures of their M-P joints

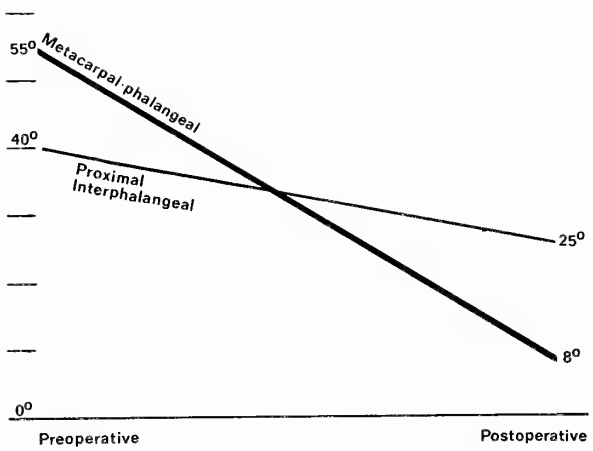


Fig. 6. Graph to show the average of the total contractures preoperatively and postoperatively, contrasting the good results obtained at the metacarpal-phalangeal joints with the less satisfactory corrections that could be obtained at the proximal interphalangeal joints.

totaling an average of fifty-five degrees. (Fig. 6) Postoperatively, their contractures at this level totaled an average of eight degrees. Fixed contractures of the proximal interphalangeal joints of over sixty degrees could not be released completely if they had been present for more than a year. While our patients preoperative PIP joints contractures averaged forty degrees, postoperatively they averaged a total of twenty-five degrees.

Discussion

There is a definite Dupuytren's diathesis. These persons may have no nodularity of the palmar fascia, but there is some thickening. They are not able to hyperextend any of their finger joints and may even have flexion contractures of five or ten degrees. They will have a tendency to stiffness of their hands after trauma, including any surgical procedures requiring prolonged immobilization, such as a palmar pedicle flap or even a cross-finger pedicle flap. If they develop nodularity of their palms, early surgery will result in decreased function and surgery is not justified until they do have some definite functional impairment in their hands. Functional improvement cannot be anticipated unless they have a forty degree contracture of the metacarpal-phalangeal joint or ten degrees of fixed flexion of the proximal interphalangeal joint.

We have seen Dupuytren's contracture develop after injuries of the involved extremities and after a myocardial infarction. It is our impression that trauma, including inadequate surgery, can be an inciting factor, but it is not the basic cause of the condition.

Conclusions

Dupuytren's contracture can easily be diagnosed clinically. Surgery is contraindicated unless the hand has a definite functional impairment. Inadequate surgery, or unrelated surgery in the hand, will stimulate production of contractures.

Limited fasciectomies will adequately correct metacarpal-phalangeal joint contractures. Fixed deformities of the proximal interphalangeal joints are more difficult to treat especially if the extensor mechanism is attenuated by long standing disuse.

Even though this disease is incompletely understood, improved hand function can be achieved if the correct operation is done at the proper time. The surgery and the patient must cooperate in a complete program of postoperative care.

REFERENCES

[1] Davis, J. E.: On Surgery of Dupuytren's contracture. Plast. Reconst. Surg., 36:277-310, September, 1965.

[2] Dupuytren, Guillaume: Permanent Retraction of the Fingers, Produced by an Affection of the Palmer Fascia. (Translation) Lancet, 2:22-225, 1934.

[3] Freehafer, A. A., and Strong, J. M.: The Treatment of Dupuytren's Contracture by Partial Fasciectomy. J. Bone and Joint Surg., 45-A:1207-1216, September, 1963.

[4] Hueston, J. T.: Dupuytren's Contracture, William and Wilkins, Baltimore, 1963.

[5] Luck, J. V.: Dupuytren's Contracture. A New Concept of the Pathogenesis Correlated with the Surgical Management. J. Bone and Joint Surg., 41-A:634-664, June, 1959

[6] Mason, M. L.: Symposia on Recent Advances in surgery. Dupuytren's Contracture. S. Clin. North America, 32:233-245, 1952.

[7] McIndoe, A., and Bear, R. L.: Surgical Management of Dupuytren's Contracture. Am. J. Surg., 95:197-199, 1958.

[8] Skoog, Tord: Dupuytren's Contracture. With Reference to Aetiology and Improved Surgical Treatment. Acta. Chir. Scandinavica, 96:Supplementum 139, 1948.

The girth control pill

Tepanil® Ten-tab®

(continuous release form)

(diethylpropion hydrochloride, N.F.)

When girth gets out of control, TEPANIL can provide sound support for the weight control program you recommend. TEPANIL reduces the appetite—patients enjoy food but eat less. Weight loss is significant—gradual—yet there is a relatively low incidence of CNS stimulation.

Contraindications: Concurrently with MAO inhibitors, in patients hypersensitive to this drug; in emotionally unstable patients susceptible to drug abuse.

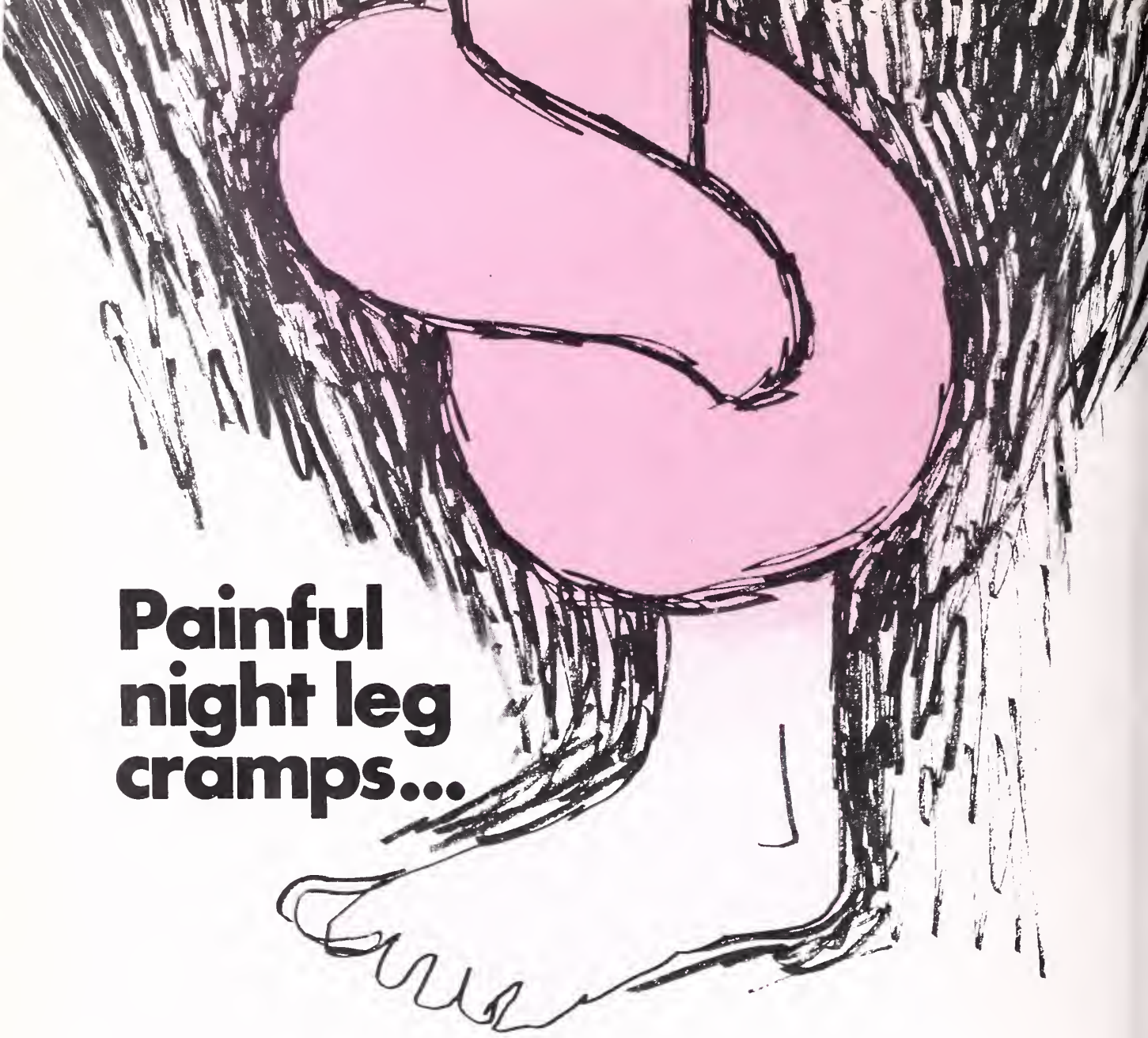
Warning: Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

Adverse Reactions: Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence. As is characteristic of sympathomimetic agents, it may occasionally cause CNS effects such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported. Sympathomimetic cardiovascular effects reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others. Allergic phenomena reported include such conditions as rash, urticaria, ecchymosis, and erythema. Gastrointestinal effects such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosage forms: TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL: One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

Merrell

MERRELL-NATIONAL LABORATORIES
Division of Richardson-Merrell Inc.
Cincinnati, Ohio 45215



Painful night leg cramps...

unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

One thing patients can sleep without, particularly patients with chronic disease conditions such as arthritis, diabetes or PVD, is painful night leg cramps. Although seldom the presenting complaint, night leg cramps can tie your patients up in painful knots. Now, just one tablet of QUINAMM at bedtime can usually bring an end to shattered sleep and needless suffering. Your patients will sleep restfully—gratefully—with QUINAMM, specific therapy to prevent painful night leg cramps.

Prescribing Information—Composition: Each white, beveled, compressed tablet contains: Quinine sulfate, 260 mg., Aminophylline, 195 mg. **Indications:** For the prevention and treatment of nocturnal and recumbency leg muscle cramps, including those associated with arthritis, diabetes, varicose veins, thrombophlebitis, arteriosclerosis and static foot deformities. **Contraindications:** QUINAMM is contraindicated in pregnancy because of its quinine content. **Precautions/Adverse Reactions:** Aminophylline may produce intestinal cramps in some instances, and quinine may produce symptoms of cinchonism, such as tinnitus, dizziness, and gastraintestinal disturbance. Discontinue use if ringing in the ears, deafness, skin rash, or visual disturbances occur. **Dosage:** One tablet upon retiring. Where necessary, dosage may be increased to one tablet following the evening meal and one tablet upon retiring. **Supplied:** Bottles of 100 and 500 tablets.

Merrell

MERRELL-NATIONAL LABORATORIES
Division of Richardson-Merrell Inc.
Cincinnati, Ohio 45215

1-3326 (2877)

Quinamm™ Specific therapy for night leg cramps

(quinine sulfate 260 mg., aminophylline 195 mg.)

Anticoagulants in acute coronary disease

Relapse after termination of therapy

Herbert R. Brettell, MD,* Denver

Termination of long term anticoagulant therapy carries a risk of relapse of thromboembolic disease in some patients. Various factors perhaps associated with this risk are discussed. Two cases, unique among previously reported cases, are presented.

DESPITE MORE THAN TWENTY YEARS use of coumarin type anticoagulants, their place in the long-term therapy of atherosclerotic coronary heart disease and the consequences of their withdrawal remain controversial. Two large, controlled studies[1,2] during the past decade have indicated a reduction in mortality and reinfarction in male patients treated on a long-term basis following myocardial infarction. Benefit seems to apply chiefly to the younger male (less than 55-60 years), and during the first two to three years following initiation of anticoagulant treatment.[1] Because of these findings, we have generally treated such patients with sodium warfarin for two to three years following hospital discharge, unless a contraindication exists. All patients are followed in the anticoagulant clinic of the cardiology service during this time. Anticoagulant control is regulated by the one-stage method of Quick; a prothrombin time of 1 1/2 to 2 times the normal control is sought. At the end of the anticoagulant treatment period, the warfarin dosage is gradually tapered off over a four week period. This method of termination of anticoagulant treatment is controversial in that many investigators feel that abrupt cessation of warfarin carries no increased hazard of thrombosis over the gradual tapering regimen.[3,4,5] Adverse personal experience, unfavorable reports by others,[6,7] and the concept of "rebound hypercoagulability" have influenced us to favor the gradual termination method. The method has been supported on experimental grounds as well.[8,9] Wright[10] has postulated a "catching up" effect to account for the increased incidence of thromboembolism and death following termination of anticoagulant treatment.

Recently, three patients from our anticoagulant clinic were admitted to the coronary care unit during a one month period of time because of recurrence of severe angina or definite myocardial infarction following cessation of anticoagulant treatment. It seemed appropriate to report two of these cases as they are unique among previously reported cases in that they promptly developed symptoms of acute coronary heart disease on each of two different occasions when anticoagulants were terminated after two to three year periods of treatment. The purpose of this report then is to demonstrate the hazard of termination of anticoagulant therapy in certain patients following long-term administration. The gradual termination of warfarin dosage was obviously of no value in these cases.

CASE REPORTS

Case 1. A 55-year-old man suffered his first myocardial infarction in September 1964. His course in the hospital was complicated by an extension of his infarction and he was discharged in December 1964 on warfarin to be followed in anticoagulant clinic. He returned to work and generally did very well for the next two years. In December 1966 his warfarin dosage was gradually

*The author is Director of the Anticoagulant Clinic at the University of Colorado Medical Center.

tapered off over four weeks. January 16, 1967 he suffered severe substernal chest pain with radiation down both arms. Serial enzymes and EKG's revealed acute myocardial infarction. Anticoagulant treatment was restarted, his hospital course was uncomplicated, and he was discharged February 14, 1967 on warfarin to be followed in anticoagulant clinic. Again he returned to work and had no symptoms of coronary heart disease during the next two years. Because of psychiatric problems it was again decided to discontinue warfarin over a one month period between March and April 1969. On July 28, 1969 he came to the emergency room because of severe intermittent chest pain with radiation through to the back and aching of both upper arms for several days. An EKG in the E. R. suggested inferior myocardial infarction, but serial enzymes and EKG's over the next two weeks in the hospital did not document this. Again, anticoagulants were started, his hospital course was uncomplicated and he was discharged August 10, 1969 to be followed in anticoagulant clinic.

Case 2. A 69-year-old man suffered his first myocardial infarction in 1963. He was discharged from the hospital on warfarin, did very well during the next two years, so warfarin was discontinued in the fall of 1965. In January 1966, less than three months after cessation of warfarin, he was admitted to the hospital with another acute myocardial infarction. Anticoagulant treatment was restarted, his hospital course was uncomplicated, and he was discharged about one month later to be followed in anticoagulant clinic. During the next three years he did very well except for one or two episodes of angina per week and an occasional attack of gouty arthritis. Because of hypertension, age, and the length of time he had been on warfarin we elected to taper off the anticoagulant in April 1969. On May 26, 1969 he was admitted to the hospital after ten days of increasingly severe angina. Admission diagnosis was preinfarction angina. Anticoagulant treatment was restarted, his hospital course was uncomplicated, he was discharged on warfarin June 19, 1969 to be followed in anticoagulant clinic. Most observers felt that he had suffered another small myocardial infarction.

Discussion

Many investigators claim that the major value of the coumarin type anticoagulants is the reduction of venous thromboembolic complications, and that they have little, if any, effect on arterial thrombosis. If this is true, and one accepts the conventional pathogenesis of acute myocardial infarction, then the incidents noted in our two cases, and the reduction in reinfarction rates in males treated with anticoagulants noted earlier[1,2] are difficult to explain. Likewise, the reduction of arterial thromboembolic complications in patients with aortic prosthetic valves treated with coumarin anticoagulants is inconsistent with this theory.

A number of authors have reported the hazard of recurrence of manifestations of atherosclerotic coronary heart disease after termination of anticoagulant therapy. Dinon and Vander Veer[6] reported twenty patients who suffered recurrent myocardial infarction within four weeks after abrupt or rapid withdrawal of oral anticoagulant therapy. These patients had just been discharged from the hospital following conventional care and short-term anticoagulation therapy for acute myocardial infarction. The authors recommended gradual termination of therapy over a period of at least four weeks. Nichol et al[11] reported that ninety patients of two hundred ninety-three died of heart attacks within four years after stopping anticoagulant, twenty of these within the first month. Sise[5] reported that rebound hypercoagulability was a greater problem in patients whose anticoagulant was stopped because of hemorrhage than

Abbey Will Lend You a Hand in Home Convalescence.

Whatever it is you need, we've got it. For rent. And for sale. The very latest advances in medical technology. And trained technicians to show your patients how to use whatever you're renting.

And Abbey doesn't stop there. We process **Medicare** equipment claims, too. And we're at your service twenty-four hours a day. We've been servicing your patients forty years, so you can relax. We've got everything: Bird and Bennett IPPB units, traction equipment, aspirators, Aquamatic "K" pads, Thermophore moist heat pads, and complete oxygen service. And we deliver **immediately.** Give us a call. It's a pleasure to help.

ABBEY RENTS
...and sells, too!
© 1971
A CONSOLIDATED FOODS COMPANY
RESPONSIVE TO CONSUMER NEEDS

Denver • 677 So. Colorado Blvd. • **733-5521**

for other reasons. In his entire series of patients, it made no difference whether the anticoagulant was stopped abruptly, or gradually tapered off over six weeks. The reported period of follow-up, however, extended only for six weeks. Michaels and Beamish[3] reported a 19 per cent incidence of recurrence of thromboembolic disease within four months of discontinuing anticoagulant treatment in eighty-seven patients. It made no significant difference whether this was done abruptly or gradually.

If the method of termination of anticoagulant therapy is not the important factor in the recurrence of symptoms, what other factors might be important? Kamath[12] emphasized that withdrawal was especially hazardous in patients treated for long periods of time. Termination of treatment before two years did not seem to carry as great a risk as after two years. Possible mechanisms responsible for this are difficult to postulate. It also presents somewhat of a dilemma in balancing the findings of the Medical Research Council that anticoagulant therapy significantly reduces the rate of reinfarction, especially in the younger male, and that such protection seems to exist for a period of two to three years. A recent analysis of long-term anticoagulant administration after acute myocardial infarction by an international anticoagulant review group[13] reported the mortality experience of "anticoagulant" and "comparative" series, which were shown to be alike in relevant clinical characteristics, was significantly lower (by 20 per cent) in males given anticoagulants. Of additional clinical importance was their observation that this advantage of anticoagulant treatment appeared largely among those patients who gave a history of either angina or previous infarction at the time of admission to hospital for the treatment of their last infarction. This observation is certainly consistent with the clinical status of our two patients who promptly experienced return of symptoms following cessation of anticoagulant therapy.

Summary

It would appear that male patients with history of angina or previous infarction at the time of hospitalization for acute myocardial infarction are most likely to benefit from long-term anticoagulant treatment. Also, termination of this treatment in these patients may be more hazardous than in others. Our two patients are of particular interest in that they promptly developed return of acute symptoms of atherosclerotic coronary heart disease on each of two different occasions when anticoagulant treatment was stopped after a two to three year period of treatment. •

REFERENCES

[1] An assessment of long-term anticoagulant administration after cardiac infarction. Second report of the working party on anticoagulant therapy in coronary thrombosis to the Medical Research Council. Brit. Med J. 2:837-843, 1964.
[2] Ebert, R. V., Bordon, C. W., Hipp, H. R., Holzman, D., Lyon, A. F., Schnaper, H.: Long-term anticoagulant therapy after myocardial infarction. Final report of the Veterans Administration Cooperative Study, JAMA Vol. 207, No. 12:2263-2276, 1969.
[3] Michaels, L. and Beamish, R. E.: Relapses of thromboembolic disease after discontinued anticoagulant therapy. A comparison of the incidence after abrupt and after gradual termination of treatment. Amer. J. Cardiol. 20:670-673, 1967.
[4] Van Cleave, R.: The rebound phenomenon — fact or fancy? Experience with discontinuation of long-term anticoagulation therapy after myocardial infarction. Circulation 32:878-880, 1965.
[5] Sise, H. S., Moschos, C. B., Gauthier, J. and Becker, R.: The risk of interrupting long-term anticoagulant treatment. A rebound hypercoagulable state following hemorrhage. Circulation 24:1137-1142, 1961.
[6] Dinon, L. R. and Vander Veer, J. B.: Recurrent myocardial infarction after cessation of anticoagulant therapy. Amer. Heart J. 60:6-22, 1960.
[7] Lieberman, J. D. and Linder, M.: Elective termination of anticoagulation in coronary artery disease. Circulation 32 (Supp II): 138, 1965.
[8] Poller, L. and Thomson, J. M.: Evidence for "rebound" hypercoagulability after stopping anticoagulants, Lancet 2:62-64, 1964.
[9] Poller, L. and Thomson, J. M.: Reduction of "rebound" hypercoagulability by gradual withdrawal ("tailing off") of oral anticoagulants. Brit. Med. J. 1:1475-1476, 1965.
[10] Wright, I. S.: Treatment of thromboembolic diseases. Criteria for evaluation of studies. JAMA 174:1921-1924, 1960.
[11] Nichol, E. S., Keyes, J. N., Borg, J. F., Coogan, T. J., Boehrer, J. J., Mullins, W. L., Scott, T., Page, R., Griffith, G. C. and Massie, E.: Long-term anticoagulant therapy in coronary atherosclerosis. Amer. Heart J. 55:142-152, 1958.
[12] Kamath, V. R. and Thorne, M. G.: Ischaemic heart-disease and withdrawal of anticoagulant therapy. Lancet 1:1025-1027, 1969.
[13] International Anticoagulant Review Group. Collaborative analysis of long-term anticoagulant administration after acute myocardial infarction. Lancet 1:203-209, 1970.

Lupus erythematosus - -

Multiple hematologic abnormalities

Carl R. Kjeldsberg, MD,* Denver

The entire spectrum of hematologic abnormalities in SLE is seen in one patient. Any of these abnormalities may be the first manifestation of lupus erythematosus.

HEMATOLOGIC DISORDERS ARE common in patients with systemic lupus erythematosus (SLE). In many cases these may be the presenting features of the disease. The hematologic abnormality may be in the form of mild normochromic, normocytic anemia requiring no treatment. The less fortunate patients may have a severe hemolytic anemia, or a combination of thrombocytopenia and circulating anticoagulants causing severe hemorrhage. It is uncommon for one patient to have more than one or two abnormalities during the course of the disease.

The purpose of this paper is to describe a patient who presented virtually the entire spectrum of hematologic abnormalities associated with SLE. Over a period of three years, this young woman suffered from normochromic, normocytic anemia, hemolytic anemia, thrombocytopenia, leukopenia, eosinophilia, plasmacytosis in the bone marrow and a circulating anticoagulant.

CASE REPORT

This 24-year-old gravida I, Para I, white woman was first seen by us in 1967. She then had a five-year history of SLE, treated intermittently with Prednisone. The diagnosis of SLE was confirmed by several positive L. E. preparations in the peripheral blood and in the bone marrow, and a positive serum immunofluorescent antinuclear factor.

She was admitted to the hospital for investigation of a pelvic mass and anemia. There was no history of any bleeding diathesis. Physical examination revealed arthritic changes in the hands and fingers. The tip of the spleen was barely palpable.

Laboratory studies on admission revealed a white blood cell count of 2,800 per mm^3, with a differential count showing mild eosinophilia (6%). The hemoglobin was 10 gm./100 ml., and hematocrit 30 per cent. Bone marrow examination showed normoblastic, erythroid hyperplasia, eosinophilic hyperplasia, and plasmacytosis. Serum protein electrophoresis showed a polyclonal gammopathy.

A coagulation screen revealed a Lee White clotting time of 60 minutes (normal 7-12 minutes), activated partial thromboplastin time (PTT) of 120 seconds (normal 30-45 seconds), prothrombin time of 30 seconds (normal 10-13 seconds), and platelet count of 150,000 per mm^3. The VDRL was reactive 1:4.

A circulating anticoagulant was suspected, in view of her diagnosis of lupus erythematosus. There was no correction of the PTT or the prothrombin time using equal parts of normal plasma and patient's plasma. Small amounts of patient's plasma prolonged the PTT and the prothrombin time of normal plasma. Preincubation of the plasma was not necessary. This confirmed our suspicion of a circulating anticoagulant. A factor VIII (antihemophilic factor) assay was 62 per cent (normal 60-150%). A factor VIII dilution test showed that when her plasma was diluted with saline, the prolongation in clotting was not as great as the prolongation caused by diluting normal plasma. This would indicate that an inhibitor against factor VIII was diluted out by the use of a diluent. She was, therefore, thought to have a circulating anticoagulant directed against several factors. She was treated with large doses of Prednisone, up to 100 mg. a day, for ten days, and the partial thromboplastin time and the prothrombin time returned to normal levels. Surgery was then performed for endometriosis. No abnormal bleeding was encountered. The Prednisone dosage was reduced stepwise, and the coagulation tests remained normal. She was discharged in good condition on 10 mg. of Prednisone per day.

*From the Department of Pathology, General Rose Memorial Hospital, Denver. Dr. Kjeldsberg is now Assistant Professor, Department of Pathology, Division of Clinical Pathology, University of Utah Medical College, Salt Lake City, Utah.

In August of 1970, she was readmitted to the hospital with anemia and peripheral edema. She was then in the second trimester of pregnancy. Laboratory studies on admission showed the hemoglobin to be 9.8 gm./100 ml., hematocrit 28 per cent, white blood count 6,000/mm^3, reticulocyte count 3.8 per cent; the platelet count was 45,000. The prothrombin time and PTT were normal. The Ivy bleeding time was 8'30" (normal 1-7"). The prolongation in bleeding time was attributed to thrombocytopenia. The peripheral smear showed mild anisocytosis and poikilocytosis. The direct Coomb's test was weakly positive, and the serum haptoglobin was less than 25 mg./100 ml. (normal 75-150 mg./100 ml.). She was treated with diuretics and Prednisone (40 mg. per day), and her condition remained unchanged. She delivered a normal female infant without any complications. At the time of discharge she still had moderate hemolytic anemia and mild thrombocytopenia.

Discussion

This 24-year-old woman has had, over a period of three years, virtually every hematologic disorder ever described in systemic lupus erythematosus. Perhaps the most remarkable aspect of this case is the absence of significant symptoms despite the vast array of laboratory abnormalities — a relatively common feature in these patients.

Normochromic, normocytic anemia and leukopenia are the two most common hematologic aberrations in SLE.[1] The incidence of hemolytic anemia varies from 3 to 15 per cent.[2] Purpura is not an uncommon finding. This may be caused by vascular factors (increased vascular fragility), steroid therapy (increased vascular fragility), thrombocytopenia, azotemia, circulating anticoagulants or by functional thrombopathy. In the majority of cases, purpura is probably vascular in origin. Mild to moderate thrombocytopenia is seen in five to ten per cent of patients with SLE.[3]

Karpatkin and Siskind[4] found platelet antibodies in 88 per cent of patients with SLE. Only two of 33, however, had thrombocytopenia. They suggested that a compensated thrombolytic state was present in these patients.

Since the initial report by Conley,[5] approximately 150 cases of circulating anticoagulants associated with SLE have been described. The incidence may be more common, since anticoagulants are not usually searched for in the absence of bleeding. In

We'll send you cash instead of flowers

Flowers and candy are nice, but when you're disabled and can't work there's no substitute for cash — cash to help pay the bills until you're back on your feet again.

That's why your Colorado Medical Society offers you Disability Income Protection that can pay you up to $1,000.00 a month when you're sick or hurt and can't work.

You choose the protection that best suits your requirements from among 34 different plans — each one designed to fill a special need.

So now, while you're enjoying good health, protect yourself and your family with this primary protection from Mutual of Omaha. Get full details on this fine plan by completing and mailing the coupon below today.

Life Insurance Affiliate: United of Omaha
Mutual of Omaha Insurance Company
Home office: Omaha, Nebraska

Colorado Division Office
Mutual of Omaha
2nd Floor, Railway Exchange Bldg.
Denver, Colorado 80202

Please rush me full details on the Colorado Medical Society's Disability Income Protection Plan.

Address.....

Name.....

City..... State..... Zip.....

4-7-10-71

contrast to other types of circulating anticoagulants, the inhibitor found in SLE usually does not destroy any of the known clotting factors. It acts by interfering with the interaction of several of these factors prior to the stage where prothrombin is converted to thrombin.[6,7,8] Serious bleeding due to circulating anticoagulants is very unusual unless associated with thrombocytopenia.

Acquired functional thrombopathy appears to be the only hematologic abnormality associated with SLE not found in this patient. This platelet defect is probably due to the coating of platelets by abnormal proteins inhibiting the release of platelet factor 3.[9]

In the absence of severe anemia or significant bleeding, specific treatment for these hematologic disorders is not indicated. Blood transfusions should be avoided if possible, since patients with SLE have a relatively high incidence of transfusion reactions and they often develop antibodies against red cell antigens.[10] Hemolytic anemia, thrombocytopenia and circulating anticoagulants usually respond to treatment with steroids. In contrast to the hemolytic anemia of SLE a splenectomy may be beneficial in the treatment of thrombocytopenia, when steroids have failed. When significant bleeding occurs, secondary to circulating anticoagulants, despite treatment with large doses of steroids, plasmaphoresis, exchange transfusions or immunosuppressive therapy may be tried.[11] The patient reported here was treated only with steroids.

It is important to remember that any of the hematologic abnormalities described above may be the first manifestation of SLE. A patient with unexplained hemolytic anemia, thrombocytopenia, leukopenia or circulating anticoagulants should always have L. E. preparations and a test for immunofluorescent antinuclear factor done.

Summary

A young woman who has had virtually every hematologic abnormality known in systemic lupus erythematosus is presented. The salient features were normochromic, normocytic anemia, hemolytic anemia, leukopenia, eosinophilia, plasmacytosis, thrombocytopenia and a circulating anticoagulant. Despite the vast array of laboratory abnormalities she had no significant symptoms. It is emphasized that any of the disorders described may be the presenting feature of SLE. •

REFERENCES

[1] Michael, S. R.; Vural, I. L.: Bassen, F. A., et al: The hematologic aspects of disseminated (systemic) lupus erythematosus. Blood 6:1059-1072, 1951.
[2] Videbaek, A.: Autoimmune hemolytic anemia in systemic lupus erythematosus. Acta Med Scand 171:187-194, 1962.
[3] Dubois, E. L.: Lupus Erythematosus. Edited by E. L. Dubois, The Blakiston Division, McGraw-Hill Book Company, 1966, pp. 264-267.
[4] Karpatkin, S., and Siskind, G. W.: In vitro detection of platelet antibody in patients with idiopathic thrombocytopenic purpura and systemic lupus erythematosus. Blood 33:797-812, 1969.
[5] Conley, C. L., and Hartman, R. C.: A hemorrhagic disorder caused by circulating anticoagulant in patients with disseminated lupus erythematosus. J. Clin. Invest. 31:621-622, 1952.
[6] Sanchez, Medal L., and Lisker, R: Circulating anticoagulants in disseminated lupus erythematosus. Brit J. Haemat 5:284-293, 1959.
[7] Breckenridge, R. T., and Ratnoff, O. D.: Studies on the site of action of a circulating anticoagulant in disseminated lupus erythematosus. Amer. J. Med. 35:813-819, 1963.
[8] Biggs, R., and Denson, K. W. E.: The mode of action of a coagulation inhibitor in the blood of two patients with disseminated lupus erythematosus (DLE). Brit J. Haemat 10:198-216, 1964.
[9] Owen, C. A., Jr.; Bowie, E. J.; Didisheim, P., et al: The Diagnosis of Bleeding Disorders. Little Brown and Company, 1969, pp. 221-224.
[10] Aegerter, E., and Long, J. H.: The collagen disease. Amer. J. Med. Sci. 218:324-337, 1949.
[11] Veltkamp, J. J.; Muller, A., and Loeliger, E. A.: Human Blood Coagulation, Biochemistry, Clinical Investigation and Therapy. Edited by H. C. Hemker, E. A. Loeliger, and J. J. Veltkamp. Springer-Verlag, New York, Inc., 1969, p. 220.

FAMILY PRACTICE CERTIFICATION

The American Board of Family Practice will offer its next examination for certification in various centers throughout the United States on April 29 and 30, 1972. Applications for certification must be received in the office of the secretary of the board not later than February 1, 1972. For further information about these examinations and certification, write Nicholas J. Pisacano, MD, Secretary, American Board of Family Practice, Inc., University of Kentucky Medical Center, Annex No. 2, Room 229, Lexington, Kentucky 40506.

Campbell's Soups... wide variety...for limited appetites

Many people lose interest in food as they grow older. Some of them are fussy eaters—with only a few favorite foods. Others become indifferent to foods—because planning and preparing meals becomes a chore. Here Campbell's Soups can help —for these four very good reasons:

Appeal With a variety of tastes, textures, aromas, and colors, Campbell's Soups can add interest and appetite appeal. And they're easy to eat—ingredients are tender, bite-size. Many patients on special diets will find soups they can enjoy among the more than 50 different varieties available.

Nourishment Campbell's Soups contain selected meats and sea foods, best garden vegetables—carefully processed to help retain their natural flavors and nutritive values.

Convenience Within 4 minutes a bowl of delicious soup is heated and ready to eat.

Economy Campbell's Soups are inexpensive—an important consideration to those whose budgets are limited.

Recommend Campbell's Soups . . . and, of course, enjoy them yourself. Remember, *there's a soup for almost every patient and diet . . . and for every meal.*

Doctor, has health care insurance paperwork become an uncontrollable monster in your business office ?

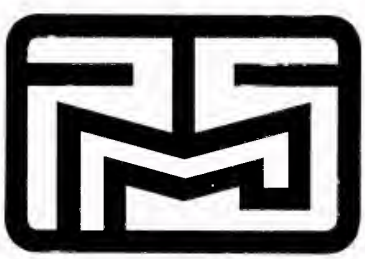
It doesn't need to be!

We have better than a decade of experience in the business side of medical practice. This specialization has given **our** clients the benefit of a systematic approach to the processing of insurance forms.

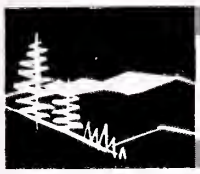
The aides of **our** clients have been instructed how to correlate insurance claims with sound management of accounts receivable. They know the most effective procedures to employ when consignment (or assignment) patients visit the office. They are familiar with all the policies, protocol and reasonable and customary charges of the various carriers. Thus, there is no mire of red tape involved when claims are submitted.

Our firm is nationwide, but our home is in the Rocky Mountains, in Denver. A resident consultant serves the medical profession in your area. If you want your aide to work with a purring kitten instead of an unwieldy chimera, give him a call.

Albuquerque, N.M.	Herb Hughes	(505) 298-5809
Albuquerque, N.M.	Jae Listek	(505) 298-5809
Billings, Montana	Harry Miller	(406) 248-6203
Boulder, Colorado	George Hunt	(303) 444-3149
Calo. Spgs., Colo.	Geo. Schrameyer	(303) 598-2042
Denver, Colorado	Dick McMullen	(303) 986-2394
Denver, Colorado	Jim Meador	(303) 623-7165
Denver, Colorado	Ed Rarden	(303) 623-7165
Ogden, Utah	Doyle Allen	(801) 394-5828
Santa Fe, N. M.	Don Hughes	(505) 983-1314



PRACTICE SERVICES MANAGEMENT



COLORADO

GENERAL HOSPITAL SERVICES of the COLORADO STATE HOSPITAL

William E. Looby, MD,* Pueblo, Colorado

THE COLORADO STATE Hospital is an institution for the treatment of the mentally ill, having a population of 1,297, which includes 344 patients on the Geriatrics Division. This hospital is accredited by the JCAH. Colorado State Home and Training Center, with 477 patients, is located on the same grounds. Colorado State Penitentiary is located about 40 miles away and has 1,500 inmates. Colorado State Reformatory is approximately two hours away by automobile, and has 630 inmates. All of these institutions are served by the General Hospital Services of Colorado State Hospital, as are other State institutions to a lesser degree.

The facilities are lodged in a $4,100,000 building completed in 1965. One hundred one beds are currently in use, with more available if needed. The equipment, instruments, etc., are modern and adequate. Direct and Indirect costs per patient day on the General Hospital Services is $59.00. This includes full-time staff, consultants' and residents' salaries, operating room, anesthesia, recovery room, I.C.U., drugs, laboratory and radiological procedures, nursing care, as well as board and room. Other indirect costs include a share of administration, housekeeping and plant operation, laundry, dietary, staff education and supportive services.

Surgical Services

The Chief of Surgery is a Board Certified surgeon, whose assistant is a Fellow of the Royal College of Surgeons, Ed., and also eligible to take the American Board of Surgery examination. The Operating Suite consists of six major operating rooms and includes one for Orthopedics, one for G.U., and one for Proctology. There is a six-bed Recovery Room adjacent to the operating suite.

There is a four-year approved Surgical Residency Training Program in affiliation with St. Joseph's Hospital in Denver. There are currently four residents in training at our institution. The services of 24 Board Certified Consultants, covering all the sub-specialties in surgery, are locally available. These doctors supervise the pre- and postoperative care of patients as well as the operation itself. They supervise the residents in the Clinics and also participate in the 17 hours of didactic teaching given the residents each week. During the past year, 695 operations were performed, of which 139 were from C.S.P., 27 from C.S.R., and 83 from State Home and Training School. All phases of surgery are covered with the exception of open heart surgery and organ transplants. Patients in need of these procedures are referred to Colorado General Hospital in Denver.

For the past year our death rate in the first ten postoperative days was .8 per cent. Our infection rate in clean cases for the same period was also .8 per cent. Electric Shock Therapy is given in the Recovery Room, with an Anesthetist and Surgical Resident present. Approximately 150 E.S.T.'s are given yearly. The I.C.U. has four beds with all necessary therapeutic, emergency and resuscitative equipment available.

Medical Services

The Chief of Medicine is a full-time Board Eligible Internist. He has the equivalent of three full-time assistants to aid him in his work. He also has consultants in cardiac diseases, pulmonary diseases, dermatology, neurology. Pulmonary function studies and inhalation therapy are available. During the past year 1,378 E.E.G.'s were performed, and

Fig. 1. General Hospital Building.

*Chief of Surgery

1,168 E.K.G.'s. During the past year there were 302 admissions to the Medical Service. Of these, 14 were from Colorado State Penitentiary, six from Colorado State Reformatory, and 19 from State Home and Training Center. These percentages are smaller than for the Surgical Service because these institutions have physicians who can care for routine medical problems. Only the more complicated and serious cases are sent to our hospital.

Ancillary Services

MEDICAL - SURGICAL CLINICS: The Medical-Surgical Clinics have 13 examining and treatment rooms, as well as an emergency room. Also included are rooms for Ophthalmology, E.N.T., and Audiometric testing. During the past year, 6,997 patients were seen in the Surgical Clinics, which included all of the sub-specialty groups. The Medical Clinics had 3,267 visits during the same period. Of the above, there were 1,519 from State Home and Training Center, and 688 from other institutions. There were 1,353 emergencies cared for in the Clinics during this period. There were 2,204 Refractions.

CLINICAL LABORATORY SERVICES: The Director of Laboratory Services is Board Certified in both clinical and anatomical pathology. Additional coverage is provided by consultants from the local area.

During the past year 162,294 clinical pathology tests were performed. Five hundred sixty-two surgical specimens were processed and 3,263 microscopic sections were examined. Of the total clinical pathology tests, 9,522 were for other institutions, including 73 Pap smears on penitentiary inmates.

Newton Optical Company

Catering to Medical Profession Patronage

309 16th Street
Denver 80202

GUILD OPTICIANS

Telephone
534-8714

The Laboratory is extremely well equipped and contains the following major equipment:

Beckman DB Spectrophotometer
Beckman Analytrol
Photovolt Densichord Densitometer
Autoanalyzer-Dual Channel
Autoanalyzer-Electrolyte with flame
Natelson Microgasometer
Astrup Radiometer
Ames Volemetron
Coulter Counter
Autodiluters
IL pH Meter
Sartorius Analytical Balance
Gelman Electrophoresis set-up
Fluorescent Microscope
Autotechnicon
Coleman Jr. Spectrophotometers

RADIOLOGY: This service is provided by the Pueblo Radiological Group which consists of five Board Certified Radiologists. There are four Registered ARRT technicians. During the past year 12,606 X-ray examinations were accomplished. Of these, 883 were performed for other institutions on an outpatient basis. Separate statistics were not kept for these institutions when the patient was on an inpatient status.

The available equipment is as follows:

1 700 MAS diagnostic unit with image intensification

1 800 MAS diagnostic unit with control for laminography

1 800 MAS diagnostic unit with TV screen and image intensification, and with dual control for 300 MAS Franklin Head unit

2 Sanchez-Perez units utilized for special procedures

1 800 MAS Cysto unit located in the Cystoscopic Room

1 800 MAS Orthopedic unit located in the Orthopedic Operating Room

Adequate portable diagnostic units are also present.

PHYSICAL THERAPY: The Physical Therapy Department, under the direction of a Registered Physical Therapist, has excellent equipment and administered 13,822 treatments during the past year. Prosthetic Clinics are held when the need arises and are supervised by a Board Certified Physiatrist.

DENTAL SERVICES: Colorado State Hospital Dental Department is a well-equipped, six chair facility. A separate department

within the General Hospital, its primary function is to provide routine dental care to residents of the hospital. Plans are presently under way to develop training programs in the areas of dental hygiene and dental internships. The staff of nine includes four dentists, three dental aides, and two hygienists. During the year 1970, the department had 7,500 patient visits and did over 14,500 procedures. The other institutions have routine dental care available so only more serious cases requiring specialized care are referred to us. These cases numbered 219 patients.

Comments

It is evident from the above that the facilities of the General Hospital are not being utilized nearly to capacity. Plans are currently being considered which would affiliate the hospital with the University of Colorado Medical School and function as a General Hospital for nineteen counties in Southern Colorado. This would provide care for indigent patients and those requiring more sophisticated therapeutic and diagnostic tools than are available in some of the communities in their areas. It would also serve as a center for training professional and paramedical personnel, with particular reference to a family practice residency. It is our hope that these plans will be implemented in the near future.

Ski Medicine Research Competition

The United States Ski Association, Denver, is soliciting entries for its newly established Ski Medicine Research Competition which will be conducted by the Association with the Committee on Sports Medicine of the American Academy of Orthopaedic Surgeons acting in an advisory capacity. It is aimed at stimulating studies leading to reduced ski injuries. Goal of the effort is to reduce the injury hazard to the recreational skier. With the sport's rapid growth in recent years, the current U. S. skiing population is estimated at five million.

Research entries are sought from all branches of medicine, engineering, and the ski industry. Those eligible to compete are accredited physicians, research workers, engineers, and medical students who are citizens of the United States or its possessions. Entries are sought in the statistical, epidemiologic, clinical, and mechanical aspects of ski injuries.

For complete details contact James G. Garrick, MD, National Repository for Ski Medicine, Division of Sports Medicine, Department of Orthopaedic Surgery, University of Washington School of Medicine, Seattle, Washington 98105.

MONTANA

Accreditation Workshop

The Montana Hospital Association and the Montana Medical Association will sponsor a hospital accreditation workshop, conducted by the Joint Commission on Accreditation of Hospitals, at the Rainbow Hotel in Great Falls, November 8 and 9. The workshop is designed for everyone affected by accreditation and is most effective when there is adequate representation from all interested groups, including hospital trustees, administrators, members of the medical staff and of the nursing service, etc. All Montana physicians are cordially invited to attend this workshop. There will be a registration fee of $25 which includes copies of several informational volumes published by the Joint Commission on Accreditation of Hospitals, such as "Accreditation Manual for Hospitals," "Hospital Survey Questionnaire," Instructional Workbook, and "Guidelines for the Formulation of Medical Staff By-Laws, Rules and Regulations."

PICKER Medical Products

3890 ELM STREET — TEL. 388-5731 — DENVER, COLORADO 80207

Offices also in:
Colorado Springs, Colorado
2236 Glenwood Circle, 635-8768

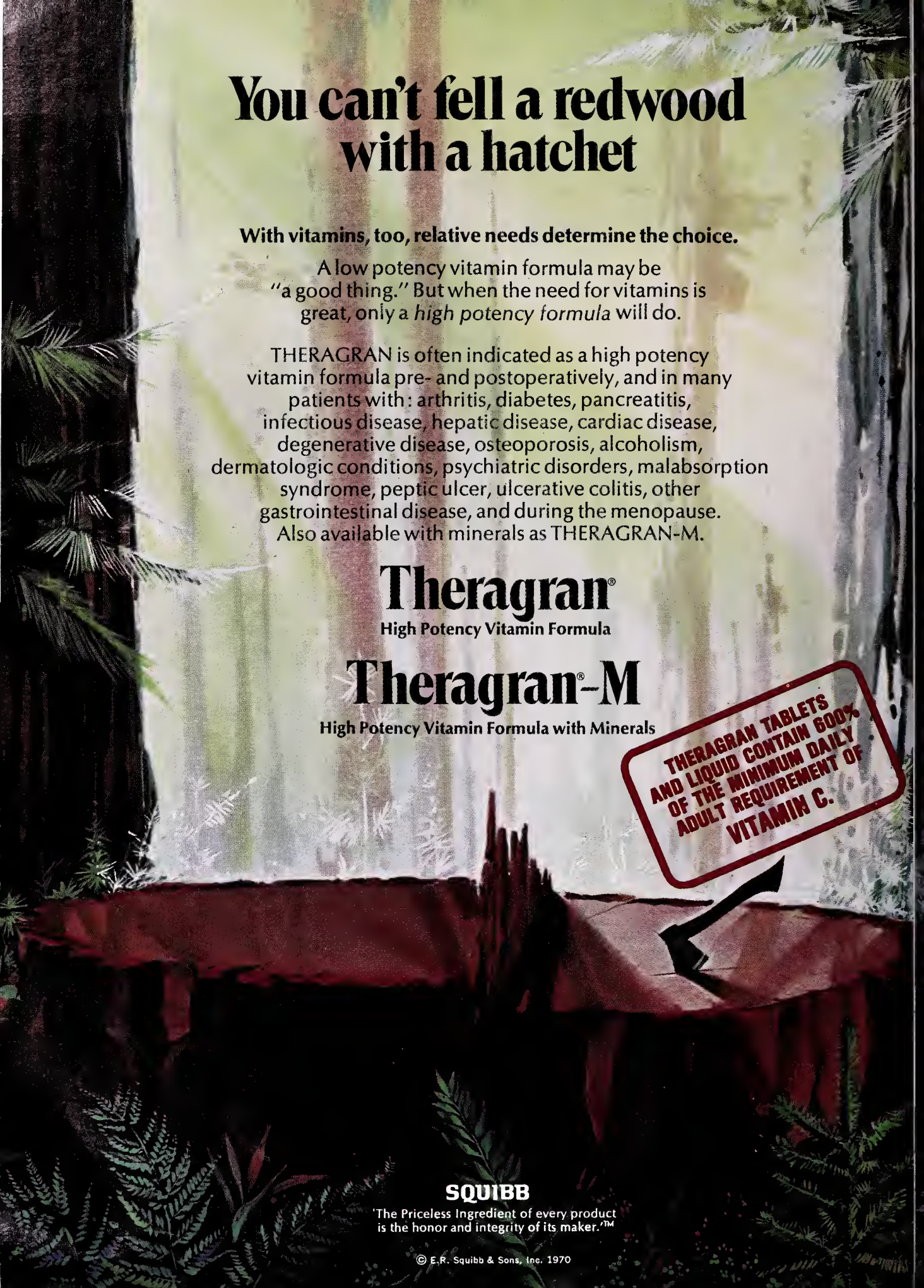
Salt Lake City, Utah
21 Kensington Street, 487-7519

Albuquerque, New Mexico
113 Sierra Dr., S.E., 255-1288

Medical X-Ray Equipment

Accessories & Film

Nuclear Equipment


You can't fell a redwood with a hatchet
With vitamins, too, relative needs determine the choice.
A low potency vitamin formula may be "a good thing." But when the need for vitamins is great, only a high potency formula will do.
THERAGRAN is often indicated as a high potency vitamin formula pre- and postoperatively, and in many patients with: arthritis, diabetes, pancreatitis, infectious disease, hepatic disease, cardiac disease, degenerative disease, osteoporosis, alcoholism, dermatologic conditions, psychiatric disorders, malabsorption syndrome, peptic ulcer, ulcerative colitis, other gastrointestinal disease, and during the menopause. Also available with minerals as THERAGRAN-M.
Theragran®
High Potency Vitamin Formula
Theragran®-M
High Potency Vitamin Formula with Minerals
THERAGRAN TABLETS AND LIQUID CONTAIN 600% OF THE MINIMUM DAILY ADULT REQUIREMENT OF VITAMIN C.
SQUIBB
'The Priceless Ingredient of every product is the honor and integrity of its maker.'™
© E.R. Squibb & Sons, Inc. 1970

OBITUARIES

Colorado

Dr. Laurence Whitridge Greene, one of Denver's leading otolaryngologists, died August 24, 1971 at the age of 76.

He was born at Le Sueur, Minnesota June 13, 1895, where he lived until entering the University of Minnesota. He received his MD degree from the University of Colorado in 1922.

Doctor Greene served in the Army during World War I. He established his medical practice in 1923, limiting his practice to Otolaryngology after 1926.

He was a member of the Colorado Otolaryngological Society, the American Academy of Otolaryngology, the American College of Surgeons, the Denver and Colorado Medical Societies and the American Medical Association.

Doctor Greene was a member of the consulting staffs at Denver General Hospital, Children's Hospital, St. Luke's Hospital and Colorado General Hospital, and was acting head of the Department of Otolaryngology and Rhinology at CU Medical School in 1958-59.

Survivors include his widow, Freda; a son, Dr. Laurence Whitridge Greene, Jr. of Laramie, Wyoming, and a daughter, Mrs. Richard Horton of Bozeman, Montana.

Gerald M. Frumess, MD, a leading dermatologist in Denver, died August 30, 1971 at the age of 65.

He was born in Denver September 9, 1906, and was graduated from the University of Colorado School of Medicine in 1929. He was married to Lois Fisher in New York City in 1933.

Doctor Frumess served with the U. S. Army Medical Corps in the South Pacific during World War II, and was a Lieutenant Colonel with the 29th General Hospital Unit.

He was formerly Associate Professor of Dermatology at the University of Colorado School of Medicine, and was Associate Professor of Clinical Medicine. He received an Alumni award from the school in 1957 for 25 years of service on the faculty.

He was a member of the American College of Physicians, the American Academy of Dermatology, the American Medical Association and the Colorado and Denver Medical Societies. He was also a member of the Southwest and Pacific Dermatological Association and was one of the founders of the Rocky Mountain Dermatological Society.

Survivors include his wife; a daughter, Mrs. Robin Seiler, Duluth, Minnesota; a son, Gerald M. Jr., Houston, Texas; two sisters, Mrs. Sophie Goldberg and Mrs. Alice Stuhlbarg, both of Denver, and four grandchildren.

Dr. Luman E. Daniels, prominent Denver physician, died July 21, 1971 after a long illness.

Doctor Daniels was born September 14, 1895, in Woodstock, Illinois. He was graduated from the University of Chicago and Rush Medical College and interned at Cook County Hospital in Chicago. After six years of private practice in Montana he entered the Mayo Clinic as a Fellow in neurology, where he remained for four years. He practiced as a consultant in neurology in Denver from 1932 until illness forced his retirement in 1969.

Doctor Daniels was on the staff of Beth Israel Hospital, Children's Hospital, Colorado General Hospital, Denver General Hospital, Mercy Hospital, Porter's Hospital, Presbyterian Hospital, General Rose Memorial Hospital, St. Anthony's Hospital, St. Joseph's Hospital and St. Luke's Hospital.

He was a member of the American Medical Association, the Colorado Medical Society, the Denver Medical Society, the American Neurologic Society, the American Academy of Neurology, Central Neuropsychiatric Association, the Clinical and Pathological Society. He was Emeritus Clinical Professor of Neurology at the University of Colorado, Consultant for the Army, Consultant in Neurology for the Veterans Administration, Area Consultant for the Veterans Administration and consultant for the Veterans Administration in Cheyenne, Wyoming.

He is survived by his wife, Adelaide King Daniels. He was preceded in death by a son, Robert Bruce.

Wyoming

Glenn O. Beach, MD, retired Casper, Wyoming physician, died August 15 at St. Mary's Hospital in Rochester, Minnesota after a long illness.

The 68-year-old physician was born May 10, 1903 in Grand Island, Nebraska, where he was raised and attended school. He graduated from the University of Nebraska Medical School at Omaha in 1928 and then interned at St. Margaret's Hospital in Kansas City, Kansas. Doctor Beach moved to Casper in 1930 and practiced medicine for 37 years before retiring there in May, 1967.

He was active in various professional organizations, including the Wyoming State Medical Society, the American Medical Association, Southwestern Surgical Congress, Industrial Medical Association and the American College of Surgeons.

In addition to his widow, he is survived by one daughter, Mrs. Janice James of Casper; one son, Charles, of Casper, and 11 grandchildren.

Paying tribute to the physician shortly after his death, the "Casper Star-Tribune" editorially noted, "Doctor Beach epitomized the friendly family doctor. There was no doubt that he filled a great need in the community in 37 years of general practice. He had the human touch, the rare faculty of dropping the kindly word and the gentle sense of humor that endeared him to many."

MEDICAL SCHOOL NOTES

University of Utah Medical Center

NEW "CLEAN AIR" FACILITY PROVIDES SAFEGUARDS FOR TOTAL JOINT REPLACEMENT SURGERY

For the past month University Hospital has been using in its operating suite a new facility unique in the Intermountain Area. An Enviromedic Isolator, which is the only unit of its kind now in use between Denver and San Francisco, has been installed inside one of the hospital's operating rooms.

The room consists of two caster-mounted glass-panel walls that pull out from an end filter wall to form a three-sided enclosure about three feet inside the regular operating room. When not needed, the glass walls can be slid back to return the room to normal use.

The unit operates on the wind tunnel principal. All air moving into the operating field is rid of bacteria-carrying particles as it passes through the filter wall. Then, as the air moves through the open end of the enclosure, it is sucked around the outside of the glass panels and recycled. The air in the room is completely changed twice each minute.

When the sliding panels are fully extended, the area within the enclosure is completely isolated by the flow of clean air and is unaffected by conditions in the remainder of the room or in the outer hallway.

The surgical procedure most often performed in the new clean air room is total replacement of the hip joint. Usually, patients have been suffering from rheumatoid arthritis.

The technic for joint replacement used by the University Hospital surgical team is also unique in the Intermountain Area, although similar operations are currently performed in a number of other institutions in the country.

The artificial hip used consists of a stainless steel ball and shaft that fits into a high-density polyethlylene socket—a combination of materials that seems to work much better than the formerly used steel-on-steel artificial hip.

Rather than depending upon the natural process of healing, which may take months to fix the artificial hip in place, the new method cements the artificial parts into place with a doughy liquid material that fills in the space between the bone and the artificial hip and becomes solid within minutes. Thus, the surgeon is able to determine, while still in surgery, if the joint fits properly and firmly.

The clean air room, which was installed at the hospital specifically to house this type of joint replacement surgery, gives the patient protection against any possible infection that might interfere with the success of the operation.

* * * * *

One of six MEDEX programs in the United States began at the University of Utah Medical Center on September 7. The new program is designed to train carefully selected former military corpsmen for use within the private practice of medicine under the guidance of physicians providing primary health care. The MEDEX will supplement the overworked physician. Thus, greater numbers of patients will receive quality health care and medical services.

The Utah MEDEX program is a joint effort sponsored by the Department of Community and Family Medicine, the Intermountain Regional Medical Program, and the Utah State Medical Association.

The University of New Mexico

A total of $112,951 in federal money has been given to the University of New Mexico as loans and scholarships for students of pharmacy and medicine during the next school year. The awards are made under the Health Professions Educational Assistance Act of 1968, which recently has been extended for another year by Congress. Under the Act, students may obtain loans up to $2,500 for an academic year or scholarships up to $2,500 for a 12-month period. Schools participating in the program select the scholarship and loan recipients and determine the amounts to be received under guidelines set by National Institutes of Health.

The UNM School of Medicine has received $59,883 in loan funds and $30,680 in scholarship money. The UNM College of Pharmacy has been awarded $22,388 in scholarship money.

Dr. Diane Klepper, Dean of Student Affairs at the medical school, said between 50 and 60 per cent of the medical students at UNM are dependent upon the school for financial help, and this Act is the primary source of help for these students.

* * * * *

Dr. Robert S. Stone, dean of the University of New Mexico School of Medicine since July, 1968, and UNM Vice President for Health Sciences, has been appointed to the advisory committee of the Atomic Bomb Casualty Commission. The meetings involve over-all review of the on-going research on the effects of atomic radiation.

Doctor Stone was chief of research in pathology for the Atomic Bomb Casualty Commission in Hiroshima, Japan, in 1959-60.

* * * * *

A new assistant professor at the University of New Mexico College of Pharmacy, Dr. Richard E. Keesee, will begin developing a program in radiopharmacy this fall. Radiopharmacy deals with the preparation and administration of radioactive drugs, utilizing short-lived radioisotopes. These radiopharmaceuticals are used in the diagnosis and treatment of disease in chemical nuclear medicine departments.

There are probably not more than 25 or 30 other radiopharmacists working in the United States, and no formal training for pharmacists was available in the field until 1969. Before that, radioisotopes were handled mainly by chemists.

Albuquerque will undoubtedly become a major center for nuclear medicine, partly because it is located only 90 miles from the new proton accelerator being built at Los Alamos. The first useful beam is predicted from the Los Alamosa Meson Physics Facility late next summer. The facility will then produce radioactive isotopes in quantities and types not available anywhere else in the world. Many of the isotopes produced will live for very short periods of time, and, therefore, only near-by facilities will be able to use them.

Doctor Keesee said UNM will begin training in radiopharmacy by offering a four-unit course to pharmacy students and nuclear medicine trainees this spring.

* * * * *

Fifty-five future doctors have been accepted as first-year students at the University of New Mexico School of Medicine. The class, the largest yet admitted to the medical school, brings the total registration for 1971-72 to 193 medical students, 33 interns and 130 residents—a total of 356 doctors training under UNM supervision.

Of the new class, 51 are New Mexico residents. Two are from Wyoming and one from Nevada (all attending under the WICHE agreement with nearby states which have no medical schools) and one student is from Michigan.

The new medical school graduated its fourth class of doctors last June.

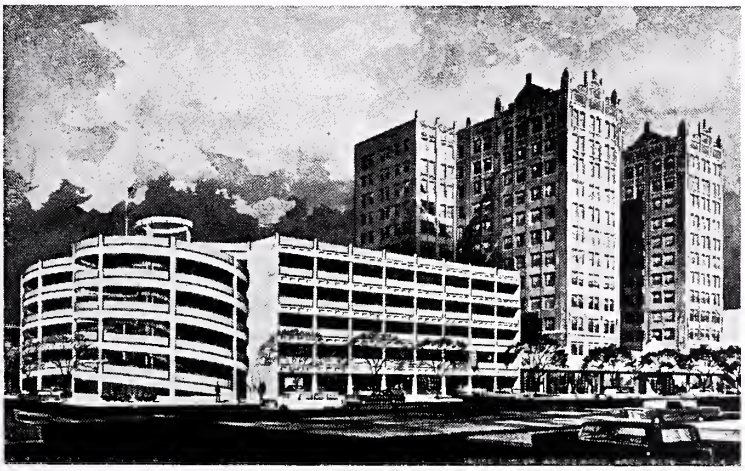
* * * * *

A residency program to train orthopedic surgeons has been approved at the University of New Mexico School of Medicine. Dr. George Omer, Jr. is chairman of the Department of Orthopedics at UNM and will supervise the residency training which has recently been approved by the American College of Surgeons. Earlier approval has been received from the American Board of Orthopedic Surgery and the American Medical Association.

Doctor Omer said there currently are 12 doctors taking their residency training in orthopedics under UNM medical school supervision. The approval from the American College of Surgeons is retroactive for residents who have completed their training within the past year.

CENTRALLY LOCATED

For the medical and dental professions



REPUBLIC BUILDING CORPORATION

306 REPUBLIC BUILDING, DENVER, COLORADO 80202

PHONE 534-5271

Here, in the heart of downtown Denver, the Republic Building is the best-known Medical-Dental Center in the Rocky Mountain West, complete with 24-hour operation, X-ray; pathological and dental laboratories, pharmacy, drug and supply stores.

With the completion of the new 500-car, self-service parking facility, the Republic Building—designed and operated for the medical and dental professions—offers the ultimate in patient-convenience and medical facilities.

Space is available. Ask for illustrated brochure.

MEETINGS

Children's Hospital—Denver Continuing Education Department

CENTER FOR DISEASE CONTROL SYMPOSIUM ON NUTRITION

October 22, 1971

No fee. Registration limited.

BRISTOL SEMINAR ON PEDIATRICS INFECTION

December 10, 1971

Leukemia Society of America, Inc.

PROGRESS IN LEUKEMIA—SYMPOSIUM

Brown Palace Hotel, Denver

October 22, 1971

Open to all interested physicians.

For further information, contact Keppel Brierly, Executive Director, Metro Denver Chapter of the Leukemia Society of America, 601 Broadway, Denver, Colorado 80203. Telephone (303) 255-2814.

Montana Academy of General Practice

BIG MOUNTAIN MEDICAL-SKI CONFERENCE

Whitefish, Montana

January 25-28, 1972

Physicians who plan to attend this conference should write for reservations at The Big Mountain, Whitefish, Montana 59937.

American Cancer Society

MONTANA DIVISION, INC., ANNUAL MEETING

Billings, Montana

October 15-16, 1971

16th Biennial Rocky Mountain Medical Conference

The Sands, Las Vegas, Nevada

October 21-24, 1971

American College of Physicians

MONTANA/WYOMING REGION SCIENTIFIC-EDUCATIONAL MEETING

Great Falls, Montana

October 30, 1971

American Medical Association

CLINICAL CONVENTION

New Orleans, Louisiana

November 28-December 1, 1971

CLINICAL REVIEWS

Mayo Clinic, Rochester, Minnesota

November 1-3 and November 8-10, 1971

Because of the large number attending in past years, the Staff of the Mayo Clinic and the Faculty of the Mayo Foundation are again presenting two identical sessions. Lectures and discussions on problems of general interest in medicine and surgery.

For further information, contact P. J. Osmundson, MD, Chairman, Clinical Reviews Committee, Mayo Clinic, Rochester, Minnesota 55901.

65th Annual Meeting

SOUTHERN MEDICAL ASSOCIATION

Fontainebleau Hotel, Miami Beach, Florida

October 31-November 4, 1971

18th Annual Cardiac Conference

WHAT'S NEW IN CARDIOLOGY

Denison Auditorium—University of Colorado Medical Center

Denver, Colorado

October 20-22, 1971

FLORIDA TO ISSUE MEDICAL LICENSES BY ENDORSEMENT

Effective September 1, 1971, for the first time in history, the Board of Medical Examiners of Florida may issue licenses by endorsement to practice medicine and surgery in Florida. An amendment to the Medical Practice Act of Florida, enacted by the 1971 legislature, allows issuance of licenses by endorsement to those MD's who have been certified by the National Board of Medical Examiners or the Federation Licensure Examination (FLEX) within a period of eight (8) years preceding the date of application for licensure by endorsement. Since the effective date is September 1, 1971, this means that an MD must have been certified by the National Board of Medical Examiners since September 1, 1963, in order to initially be eligible for licensure by endorsement. As far as other state licensure examinations are concerned, this amendment applies to only those states who use the Federation Licensure Examination (FLEX) as their licensure examination.

In the case of foreign medical graduates, this does not eliminate the requirement that the MD have papers of first intention of citizenship and a minimum of one year's residency in the United States and the Educational Council for Foreign Medical Graduates Certificate of proficiency. A very important feature of the amendment is the provision that a physician who receives a license by endorsement in Florida must practice in the state within a period of three years for a minimum period of one year. If he does not do this the license will become null and void. Service in the armed forces is exempt during these three years, but internship or residency time is not exempt.

Triaminic®

phenylpropanolamine hydrochloride, pyrilamine maleate, pheniramine maleate

"the Sunshine Tablet"

Formula: Each timed-release tablet contains phenylpropanolamine hydrochloride, 50 mg.; pyrilamine maleate, 25 mg.; pheniramine maleate, 25 mg. **Indications:** Relief from such symptoms as nasal congestion, profuse nasal discharge and postnasal drip associated with colds, nasal allergies, sinusitis and rhinitis. **Precautions:** Patients should not drive a car or operate dangerous machinery if drowsiness occurs. Use with caution in the presence of hypertension, hyperthyroidism, cardiovascular disease, or diabetes. **Side Effects:** Occasional drowsiness, blurred vision, cardiac palpitations, flushing, dizziness, nervousness or gastrointestinal upsets. **Dosage:** Adults--one tablet swallowed whole, in morning, midafternoon and before retiring. **Availability:** In bottles of 100, 250.

Rx ONLY

Dorsey Laboratories, Lincoln, Nebraska, 68501

Wellcome
Burroughs Wellcome Co.
Research Triangle Park
North Carolina 27709

A gratifying announcement about Empirin® Compound with Codeine

You may now specify up to five refills within six months when you prescribe Empirin Compound with Codeine (unless restricted by state law).

It is significant in this era of increased regulation, that Empirin Compound with Codeine has been placed in a less restrictive category. You may now wish to consider Empirin with Codeine even more frequently for its predictable analgesia in acute or protracted pain of moderate to severe intensity.

Empirin Compound with Codeine No. 3 contains codeine phosphate* (32.4 mg.) gr. ½. No. 4 contains codeine phosphate* (64.8 mg.) gr. 1. *(Warning—may be habit-forming.) Each tablet also contains: aspirin gr. 3½, phenacetin gr. 2½, caffeine gr. ½.

When prescribed—Bennett's AP series makes air IPPB therapy simple and efficient!

They're easy to use. Simple, non-interacting controls make the AP ideal for patient use at home. They're also widely used in doctors' offices, clinics and in hospitals.

Bennett's AP units are therapeutically efficient. The famous, flow-sensitive Bennett Valve—the valve that "breathes" with the patient—gives proper control of pressure patterns. The Bennett/Twin Nebulizer (included with all AP Models) provides optimum volume and particle size for medication and humidification. Oxygen enrichment may be added with other Bennett accessories.

Bennett makes two AP models—the reliable AP-5, as shown, and its *self-contained portable* teammate, the AP-4 (inset). Both are electrically operated, quiet, compact and quality built.

Get full information on the Bennett AP Series from your Puritan representative. He'll also tell you about patient rental plans.

Bennett IPPB equipment is sold or rented only on prescription by a physician or on order of a hospital or other recognized medical institution.

GEO. BERBERT & SONS, INC.

1717 LOGAN STREET, DENVER, COLORADO 80203 • TEL. 255-0408

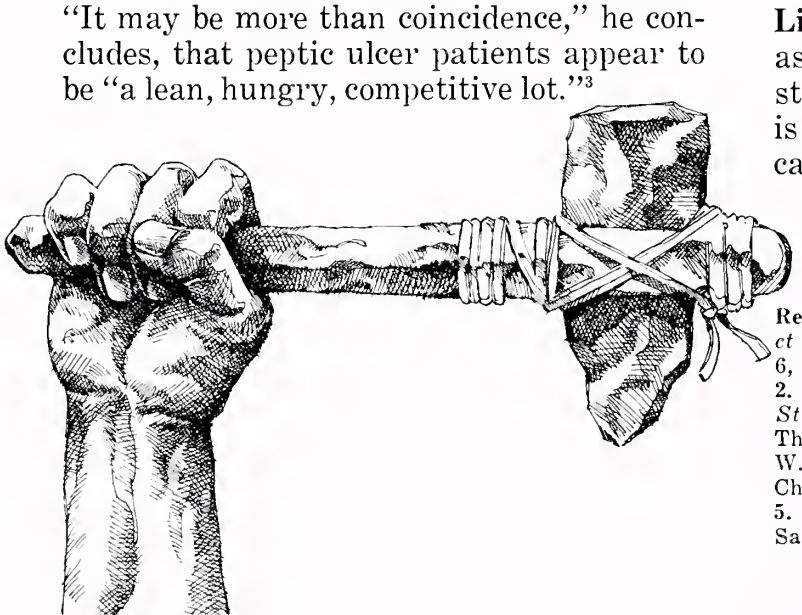
1903-1971 — OUR 68th ANNIVERSARY

IF MORE MEN CRIED

At least seventy-five out of one hundred adults with duodenal ulcers are men.[1] Why? It may be significant that duodenal ulcer patients tend to crave recognition and are "especially vulnerable to threats to their manly assertive independence."[2]

Hypersecretion—an atavistic response. Stewart Wolf, who, with Harold G. Wolff, studied the personalities of duodenal ulcer patients, wonders if masculine competitiveness is related to "an atavistic urge to devour an adversary." It is striking, he reports, that an accentuation of gastric acid secretion and motility can be "induced in ulcer patients by discussions that arouse feelings of inadequacy, frustration and resentment."[2]

By chance? A lean, hungry lot. Was the link between emotions and gastric hyperacidity acquired through mutation to serve a purpose? During man's jungle period of evolution, the investigator points out, a male dealt with a foe by killing and devouring it. "It may be more than coincidence," he concludes, that peptic ulcer patients appear to be "a lean, hungry, competitive lot."[3]



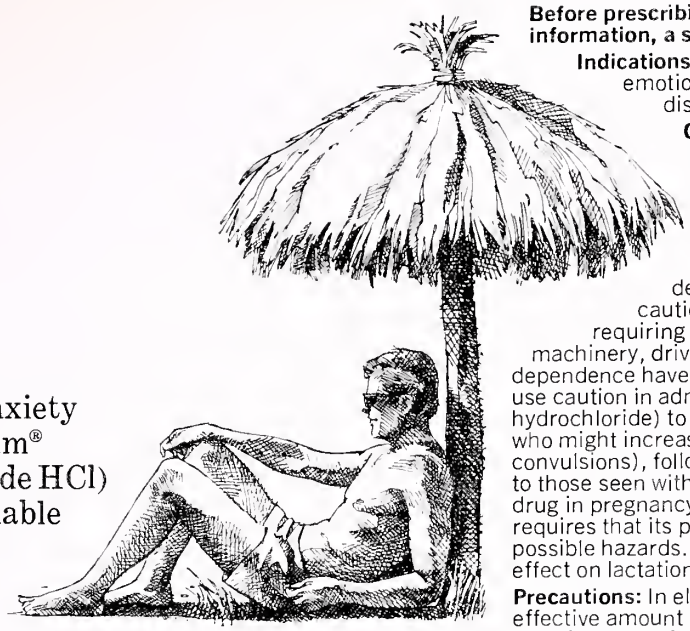
Big boys don't cry. If more men cr
maybe fewer would wind up with duode
ulcers. But men will be men—the sum tota
their genes and what t
are taught. Schottstad
observes that whe
mother admonishes
son who has hurt him
that big boys don't cry,
is teaching
stoicism.[4] Crying is
negation of everyth
society thinks of as ma
A boy starts defendin
manhood at an early a

**Take away str
you can take away sympto**

There is no question that stress play
role in the etiology of duodenal ulc
Alvarez[5] observes that many a man with
ulcer loses his symptoms the day he shuts
the office and starts out on a vacation. 'h
problem is, the type of man likely to have
ulcer is the type least likely to take l
vacations or take it easy at work.

**The rest cure vs. the two-way actio
Librax.®** For most patients, the rest cur
as unrealistic as it is desirable. Still, h
stress factor must be dealt with. And
is where the dual action of adjunctive Lib
can help. Librax is the only drug that c

References: 1. Silen, W.: "Peptic Ulcer," in Wintrobe, M M. *et al.* (eds.): *Harrison's Principles of Internal Medicin* ed 6, New York, McGraw-Hill Book Company, 1970, p. 44 2. Wolf, S., and Goodell, H. (eds.): *Harold G. Wo Stress and Disease*, ed. 2, Springfield, Ill., Charl Thomas, 1968, pp. 68-69. 3. *Ibid.*, p. 257. 4. Schottst W. W.: *Psychophysiologic Approach in Medical Pra* Chicago, Ill., The Year Book Publishers, Inc., 1960, p. 16 5. Alvarez, W. C.: *The Neuroses*, Philadelphia, Pa., Saunders Company, 1951, p. 384.



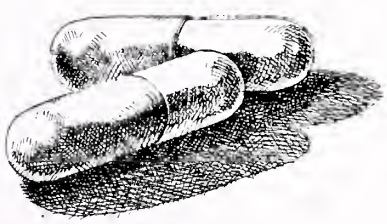
bines the antianxiety action of Librium® (chlordiazepoxide HCl) with the dependable antisecretory/ antispasmodic action of Quarzan® (clidinium Br).

Protects man from his own hungry personality. The action of Librium reduces anxiety—helps protect the vulnerable patient from the psychological overreaction to stress that clutches his stomach. At the same time, the action of Quarzan helps quiet the hyperactive gut, decreasing hypermotility and hypersecretion.

An inner healing environment with 1 or 2 capsules, 3 or 4 times daily. Of course, there's more to the treatment of duodenal ulcer than a prescription for Librax. The patient—with your guidance—will have to adjust to a different pattern of living if treatment is to succeed. During this adjustment period, 1 or 2 capsules of Librax 3 or 4 times daily can help establish a desirable environment for healing.

Librax: It can't change man's nature. But it can usually make it easier for men to cope with the discomfort of stress—both psychic and gastric—that can precipitate and exacerbate duodenal ulcer.

Librax: Rx #60 1 cap. *a.c.* and 2 *h.s.*



Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

in the treatment of duodenal ulcer

• adjunctive

Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

WANT ADS

MEDICAL SUITE FOR RENT in modern 3 man clinic. Fully furnished consultation room with 2 adjoining examining rooms. Includes use of 4 aides, fully equipped lab, physiotherapy room, X-ray room, EKG room, reception room and business office. Contact: Harold E. Gilman, M.D., 3405 Downing Street, Denver, Colorado (303) 623-6171. 771-3-4B

VAIL CONDOMINIUM: Treat yourself and/or your out-of-town guests to a few days of luxury at summer rates that are comparable to motel prices. Sleeps 6 plus. Preferred rates given to local physicians. Call W. L. Reimers, M.D., 322-6174. 871-2-3B

NEAR LAKE GRANBY COLORADO—10 acres or more; stream, hay meadows, large aspen, pine. Close to ski areas. Sale and financing by owner. Ten per cent down. Phone (303) 466-2412. 871-3-3B

THE BRIGHTON, COLORADO AREA is growing rapidly and needs additional physicians. Internist, GP, ObGyn, Pediatrics, Orthopedics. Accredited hospital. 20 miles from Denver. Fine community for children. Contact F. C. Sage, Administrator, Brighton Community Hospital, Brighton, Colorado 80601. (303) 659-1531. 871-7-4B

INTERNIST BOARD CERTIFIED or qualified for private practice in college town Northern Colorado—salary first year with partnership later with Board certified surgeon, and Board qualified internist. Please reply to Box 971-1-6, Rocky Mountain Medical Journal, 1809 East 18th Avenue, Denver, Colorado 80218. 971-1-6

WANTED: An Internist to join a 3 man staff in Internal Medicine Department for Chief of Medicine position. Very active small GM&S hospital with excellent consultants, educational opportunities and ample free time. Located in small picturesque Western city of 10,000. Salary $24,285 to $26,675 depending on qualifications. Non-discrimination in employment. Write or call Frank R. Mohs, M.D., Chief of Staff, VA Hospital, Miles City, Montana 59301. 971-3-3B

FOR SALE—Picker x-ray 200MA, fluoroscope, rotating anode tube, manual tilt table and dark room equipment, excellent condition, $1,000.00. Dr. E. R. Core, 712 South Howard, Kimball, Nebraska 69145, (308) 235-2680. 1071-1-2B

MATCHED TREATMENT ROOM SET, Hamilton, 5 pieces $250.00. Dr. E. R. Core, 712 South Howard, Kimball, Nebraska 69145, (308) 235-2680. 1071-2-2B

REASONABLY PRICED office equipment for sale: Sonar, Cambridge EKG, 5 Microtherms, autoclave (small), treatment tables, instrument tables and surgical instruments. Dr. E. R. Core, 712 South Howard, Kimball, Nebraska 69145, (308) 235-2680. 1071-3-2B

WANTED: M.D. under 55 years of age who wishes a challenging practice with regular hours. One month paid vacation plus other fringes. Compatible small medical staff in a 40-bed Joint Commission Accredited University hospital. Attractive college town of 35,000 with outstanding cultural, sporting and recreational attractions. For more information write Robert E. Sinclair, M.D., Lafene Student Health Center, Kansas State University, Manhattan, Kansas 66502. 1071-4-1B

NEWLY DECORATED OFFICE in hospital area for rent (furnished or unfurnished), by M.D. forced to retire because of illness. Large reception room shared with established GP. Two examining rooms. No capital required to begin a lucrative practice in a well-kept building. Private parking lot and storage space available. 2015 York, Denver 80205, phone 377-4342. 1071-5-1B

INTERIOR DESIGN SKILL when executed by an accredited designer, is an economic and aesthetic gain—when you consider the years of visual comfort and pleasure this brings to you, your employees and patients on a daily basis. Interior Design Consultants, 2715 E. 3rd Avenue, Denver 80206. Tel.: 355-4516. 1071-6-1B

FAMILY PHYSICIANS, two, Colorado Springs, Colorado—to join two well-established physicians in partnership, currently building unique new medical park. Opportunities unlimited. Write or call Karl M. Buretz, M.D., 3021 North Hancock, Colorado Springs, Colorado 80907. Phone: 636-2311. 1071-7-1

GENERAL PRACTITIONER WANTED to join four-man group in Greater Reno Area. Excellent remuneration including paid group insurance, malpractice insurance, retirement fund, vacation, and early partnership. Wide variety of year-round recreational facilities. Contact: Box 1071-8-2, Rocky Mountain Medical Journal, 1809 E. 18th Avenue, Denver, Colorado 80218. 1071-8-2

NEEDED: A doctor for Lovelock, Nevada, 92 miles east of Reno on Interstate 80. A full partnership is offered in a Medical Clinic, or if not agreeable, a subsidy will be considered. Please contact Mr. Vern Schoenfeld, Chairman, Board of Trustees, by telephone, collect, at 273-2656 or 273-2681. 1071-9-TFB

Graduate Medical Assistants

Available for placement now. seven-month intensive preparation, including one month internship in a doctor's office.

We welcome your inquiries!

Contact Director of Placements at (303) 222-1526

Colorado College
of Medical and Dental Assistants
655 Broadway, Denver, Colorado

PUBLICATION PRINTING...

NEWSPAPERS • MAGAZINES
ANNUALS • QUARTERLIES
BOOKLETS • BROCHURES
REPORTS • ROSTERS • PROGRAMS
HANDBOOKS • CATALOGUES
•
EDITORIAL ASSISTANCE • BINDING
ART DEPARTMENT • MAILING

Publishers Press, Inc./ Monitor Publications

2177 W. 7th DENVER 892-0166

INDEX TO ADVERTISERS

Abbey Rents 56

Abbott Laboratories
Erythrocin 9-16

Arch Laboratories
Dicarbosil 27

Berbert, George & Sons 73

Broadmoor Hotel 77

Burroughs Wellcome Company
Neosporin 3
Empirin Compound with Codeine 72

Campbell Soup Company
Soups 61

Colorado College of Medical and Dental Assistants 76

Denver Optic Company 8

Dorsey Laboratories
Triaminic 71

Emory John Brady Hospital 43

Lederle Laboratories
Achrostatin V 22
Declostatin ..... Cover IV

Lilly, Eli & Company
Darvon Compound-65 35
V-Cillin K, Pediatric 20

McNeil Laboratories
Parafon Forte 5

Mutual of Omaha 59

Merrell—National Laboratories
Tepanil 53
Quinamm 54

Newton Optical Company 64

Picker Medical Products 65

Practice Management Services 62

Publishers Press/
Monitor Publications 76

Republic Building Corporation 69

Robbins, A. H. & Company
Donnagel 17
Robitussin 18-19

Roche Laboratories
Efudex ..... Cover II, Page 1
Noludar 31
Librax 74-75

Searle, G. D. & Company
Pro-Banthine ..... 78, Cover III

Smith, Kline and French Laboratories
Dyazide 36

Squibb, E. R. and Sons, Inc.
Theragran 66

USV Pharmaceutical Co.
DBI-TD 6-7

Upjohn Company
E-Mycin 4

Wallace Pharmaceutical Company
Miltown 8

BROADMOOR yourselves

for the pure pleasure of it all!

Discover America's finest resort facilities, dining and accommodations, here within 5,000 acres of enjoyment at the gateway to the Colorado Rockies.

The BROADMOOR Colorado Springs, Colorado

Rocky Mountain Medical Journal

LIBRARY OF THE
COLLEGE OF PHYSICIANS
OF PHILADELPHIA
NOV 3 4 1971

Library
College of Physicians
19 South 22nd Street
Philadelphia, Pennsylvania 191
I

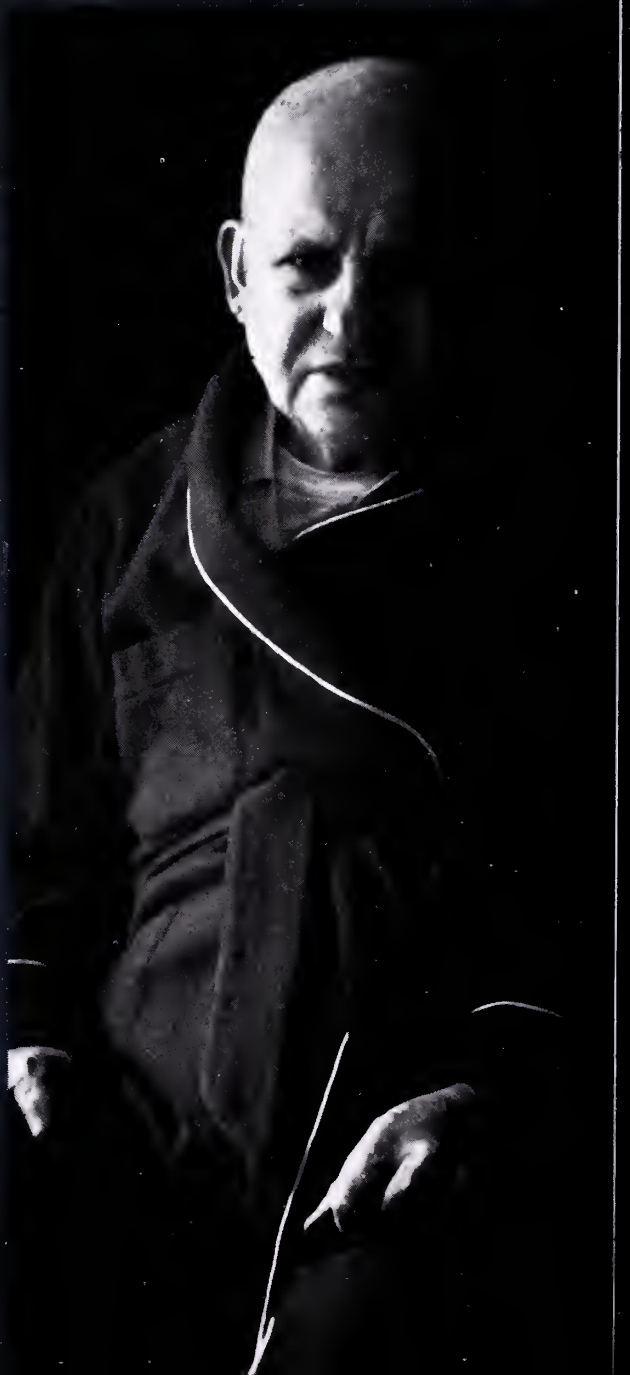
November 1971

VOLUME 68 • NUMBER 11

COLORADO • MONTANA • NEVADA • NEW MEXICO • UTAH • WYOMING

This is a "sleep cripple"

The geriatric insomniac



Profile of insomnia

Wide-eyed in the darkness, he feels the sense of loss, the loneliness and helplessness that can so often threaten the aged.

Beset by vague aches and pains, fearful of disability, sleep evades him and the night seems endless. Added to his other problems... he has become a "sleep cripple."

The stress resulting from insomnia in the geriatric patient can increase the difficulties of the elderly, and intensify somatic complaints. Allowed to continue, such insomnia may even help prompt the appearance of new symptoms.

When insomnia adds a new dimension to geriatric problems, Noludar 300 can be an effective countermeasure, whether sleep is delayed in onset, broken, or marred by early awakening. A nonbarbiturate, Noludar 300 usually works within 45 minutes, inducing sleep that can last 5 to 8 hours. Paradoxical excitation is rare—an important advantage in the geriatric patient. Drug "hang-over" or morning-after grogginess is generally avoided. Supplied in 300-mg capsules; also available in 200-mg and 50-mg tablets.

Before prescribing, please consult complete product information, a summary of which follows:

INDICATION: Relief of insomnia of varied etiology.

CONTRAINDICATIONS: Patients with known hypersensitivity to the drug.

WARNINGS: Caution patients about combined effects with alcohol and other CNS depressants. Caution against hazardous occupations requiring complete mental alertness, such as operating machinery or driving a motor vehicle shortly after ingesting the drug.

Physical and Psychological Dependence: Physical and psychological dependence rarely reported. If withdrawal symptoms do occur they may resemble those associated with withdrawal of barbiturates and should be treated in the same fashion. Use caution in administering to individuals known to be addiction-prone or those whose history suggests they may increase the dosage on their own initiative. Repeat prescriptions should be under adequate medical supervision.

Usage in Pregnancy: Weigh potential benefits in pregnancy, during lactation, or in women of childbearing age against possible hazards to mother and child.

PRECAUTIONS: If sleeplessness is pain-related, an analgesic should also be prescribed. Perform periodic blood counts if used repeatedly or over prolonged periods. Total daily intake should not exceed 400 mg, as greater amounts do not significantly increase hypnotic benefits.

ADVERSE REACTIONS: At recommended dosages, there have been rare occurrences of morning drowsiness, dizziness, mild to moderate gastric upset (including diarrhea, esophagitis, nausea and vomiting), headache, paradoxical excitation and skin rash. There have been a very few isolated reports of neutropenia and thrombocytopenia; however, the evidence does not establish that these reactions are related to the drug.

Noludar® 300
(methyprylon)

one capsule for the rest of the night

ROCHE

ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

NOVEMBER 1971

Volume 68, Number 11

Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222 (area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204

Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

Address all manuscripts, organization and other news items relating to editorial content to appropriate state editor, see below.

Editorials

23 AMA President Hall Speaks in Washington

23 A New Source of Medical Manpower?

24 More About the "Right to Die"

Articles

25 The Child Health Associate — *Louis L. Fine, MD, Denver, Colorado*

27 Galactorrhea — A Clinical Approach — *Maire T. Buckman, MD, Albuquerque, New Mexico*

31 Occupational Medical Services for Small Employee Units — *M. B. Bond, MD, Denver, Colorado*

39 Diseases Among the Navajo Indians — *Albert L. Muggia, MD, Albuquerque, New Mexico*

51 Cardiogenic Shock — *Carl E. Bartecchi, MD and John J. Howe, MD, Pueblo, Colorado*

57 Home Hemodialysis in The Rocky Mountain Region — *W. F. Pingerra, MD and J. H. Holmes, MD, Denver, Colorado; C. F. Gutch, MD and W. J. Kolff, MD, Salt Lake City, Utah*

60 Anesthesia in the Parkinsonian on Levo-dopa — *Arnold F. Greenhouse, MD, Albuquerque, New Mexico*

Organization

64 Colorado — CMS President-elect

65 Montana

65 Nevada

65 New Mexico

Features

3 Letters to the Editor

12 Book Corner

13 Medical School Notes

68 Obituaries

72 Washington Scene

76 Meetings

OUR COVER PHOTO

AMERICA THE BEAUTIFUL . . ."Purple Mountain Majesty" of Pikes Peak, towering "Above the Fruited Plains" of Colorado, inspired this beautiful hymn. Again this year, vacationers have thrilled to the incomparable scenic grandeur and varied recreational opportunities at the Top of the Nation. Credit—Colorado Department of Public Relations, Denver.

50 Publication Rules and Suggestions to Authors

80 Want Ads

81 Statement of Ownership, Management and Circulation

81 Index to Advertisers

EDITORIAL BOARD

Colorado: Douglas W. Macomber, M.D., Scientific Editor, 1800 High St., Denver (Chairman of the Board); Carl H. McLauthlin, M.D., Assistant Scientific Editor, 510 Republic Bldg., Denver.

Montana: Gerald A. Diettert, M.D., Scientific Editor, 501 W. Broadway, P. O. Box 1307, Missoula, Montana 59801; L. Russell Hegland, Associate Editor, 1236 North 28th Street, Billings.

Nevada: Harry J. McKinnon, M.D., Scientific Editor, 3196 Maryland Pkwy. S., Las Vegas; Wesley W. Hall, M.D., Assistant Scientific Editor, 607 N. Arlington Ave., Reno; Nelson B. Neff, Associate Editor, 3660 Baker Lane, Reno.

New Mexico: Marcus J. Smith, M.D., Scientific Editor, Coronado Bldg., Santa Fe; William S. Curran, M.D., Assistant Scientific Editor, 920 Stanford NE, Albuquerque; Ralph R. Marshall, Associate Editor, 3010 Monte Vista Blvd., NE, Albuquerque.

Utah: Alan E. Lindsay, M.D., Scientific Editor, 699 East South Temple, Salt Lake City; Ho W. Brewster, Associate Editor, 42 South Fir East Street, Salt Lake City.

Wyoming: Francis A. Barrett, M.D., Scientific Editor, 1616 E. 19th St., Cheyenne; Robe Smith, Associate Editor, P. O. Box 1387, Cheyenne.

Donald G. Derry, Managing Editor

Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations: It is the Official Journal of the Rocky Mountain Medical Conference and those medical societies who are represented on the Editorial Board listed above.

Advertising: National representative: State Journals West, 693 Sutt Street, San Francisco, California 94102.

Subscription: $7.00 per year in advance, postpaid in the United Stat and its possessions; single copy 60c plus postage. Subscription is i cluded in medical society dues of sponsoring state medical organiz tions.

Copyright: This Journal is copyright, 1971, by the Colorado Medic Society. Requests for permission to reproduce anything from t columns of this Journal should be addressed to the Journal Offic

Second class postage paid at Denver, Colorado

To the Editor:

I suggest that all "Letters to the Editor" which are critical of an article in the *Journal* be reviewed by the author of the original article and the author's reply be printed simultaneously. This practice, now followed in many medical journals, appears to keep the matters current and permits immediate reference to the disputed issues.

Hopefully, this practice would also promptly rebut the type of misquotation, inadequate comprehension, out of context reference, and irrational emotionality which are the bases for criticism of my recent article in the June, *Rocky Mountain Medical Journal*. The published criticism (RMMJ September 1971), perhaps better suited to the editorial tone of the "Berkeley Barb," cites neither professional sources nor personal professional experience. I can only hope that those reading the criticism will reread the original article, which answers most of the questions raised and presents the "quotations" in their proper context.

As a matter of additional information readers should know that all of the 15,000 electroshock treatments given as described in the article were consented to in writing by these private patients, and usually also by the spouse or parents. All patients were advised of the reputed dangers (none developed). The resistances referred to were not unlike those seen in the person who dislikes "shots" or the "dentist."

At least one Court has recently ruled that electroshock therapy is a proven and accepted treatment modality, and therefore written consent is not legally necessary, although I continue to believe such informed written consent is desirable. Another recent opinion indicates that failure to use electroshock in certain conditions may constitute neglect and malpractice.[1] At this date, the efficacy of electroshock in Involutional Melancholia, for example, is as well established as the benefit of penicillin in streptococcal infections and of appendectomy for appendicitis—and is far less dangerous. The absence of any lasting deleterious effect is clearly illustrated in the patients cited who showed typical improvement in all healthy aspects of functioning, including increased academic achievement and social advancement.

If electroshock had any promise as an instrument of political manipulation, I am sure we would all have heard a great deal about its use for such purposes in 1940-45 and since. A therapy which restores a person from dis-ease to normalcy can hardly be a Machiavellian political tool.

Believing as I do that the role of the physician is to heal, not wound; to improve, not degrade; to ameliorate, not agitate; we should help our patients to be more comfortable and productive by every safe means at our service.

R. L. Conde, M.D.
Box 640
Colorado Springs, Colorado 80901

[1] Beresford, H. R.: Legal Issues Relating to Electroconvulsive Therapy. Archives of General Psychiatry 25:100-102, 1971.

Newton Optical Company

Catering to Medical Profession Patronage

309 16th Street
Denver 80202

GUILD OPTICIANS

Telephone
534-8714

Ef-
fic-
iency

Dicarbosil®
ANTACID

Your ulcer patients and others will confirm it. Specify DICARBOSIL 144's—144 tablets in 12 rolls.

ARCH LABORATORIES
319 South Fourth Street, St. Louis, Missouri 63102

An epidemic that's striking home...
gonorrhea
There were over 17,000 reported cases
of gonorrhea in the Silver State last year
...a fourth in Las Vegas alone

In Nevada... and everywhere else...
a new alternative

NEW Trobicin®

SPECTINOMYCIN DIHYDROCHLORIDE, PENTAHYDRATE, UPJOHN

single-dose treatment for intramuscular use only

a chemically distinct antibiotic indicated specifically for treatment of acute gonorrhea:
in the male–acute urethritis and proctitis
in the female–acute cervicitis and proctitis
when due to susceptible strains of *N. gonorrhoeae*

High cure rate:*96% of 571 males, 95% of 294 females
(Dosages, sites of infection, and criteria for diagnosis and cure are defined on page 3 of advertisement)

Assurance of a single-dose, physician-controlled treatment schedule

---

No allergic reactions occurred in patients with an alleged history of penicillin sensitivity when treated with Trobicin, although penicillin antibody studies were not performed

---

Active against most strains of Neisseria gonorrhoeae *in vitro*
(M.I.C. 7.5-20 mcg/ml)

A single two-gram injection produces peak serum concentrations averaging about 100 mcg/ml in one hour
(average serum concentrations of 15 mcg/ml present 8 hours after dosing)

NOTE: Antibiotics used in high doses for short periods of time to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Since the treatment of syphilis demands prolonged therapy with any effective antibiotic, and since Trobicin is not indicated in the treatment of syphilis, patients being treated for gonorrhea should be closely observed clinically. Monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected. Trobicin is contraindicated in patients previously found hypersensitive to it.
For full prescribing information, including contraindications, warnings and precautions, please see last page of this advertisement.

*Data compiled from reports of 14 investigators.

Upjohn The Upjohn Company, Kalamazoo, Michigan 49001

Trobicin and the gonorrhea challenge

An accelerating epidemic— a decelerating susceptibility to penicillin

Gonorrhea is now the most prevalent reported communicable disease in the nation. The estimated number of new cases of gonorrhea in the United States exceeded two million for the first time in 1970. To compound the problems, strains of *N. gonorrhoeae* increasingly resistant to penicillin and other antibiotics are appearing throughout the country. Schedules of treatment which were effective only a few years ago now result in a significant percentage of treatment failure. *In vitro* studies have demonstrated that resistance of *N. gonorrhoeae* may also develop to Trobicin.

Thus, while aqueous Procaine Penicillin G remains the drug of choice for the majority of patients, the need for a non-penicillin, intramuscular antibiotic for acute gonorrhea in the male and female is abundantly clear. Such an antibiotic should be effective following a single intramuscular injection —and it should not demonstrate cross-resistance with penicillin

Trobicin—a new alternative specifically for the treatment of acute gonorrhea

Trobicin is indicated in the treatment of acute gonorrheal urethritis and proctitis in the male and acute gonorrheal cervicitis and proctitis in the female when due to susceptible strains of *N. gonorrhoeae*.

High cure rates: 96% of 571 males, 95% of 294 females

Trobicin is structurally not related to any other antibiotic commonly used to treat gonorrhea.

Intramuscular injections should be made deep into the upper outer quadrant of the gluteal muscle.

Adult male: Single 2 gram dose I.M. in acute gonorrheal urethritis. Single 4 gram dose I.M. (should be divided between two gluteal injection sites) in gonorrheal proctitis and in patients being re-treated after failure of previous antibiotic therapy. In geographic areas where antibiotic resistance is known to be prevalent, initial treatment with 4 grams intramuscularly is preferred.

Adult female: Single 4 gram dose I.M. (should be divided between two gluteal injection sites) in acute gonorrheal cervicitis and proctitis.

Safety for use in pregnancy has not been established, nor has safety for use in infants and children.

Clinical Results with Single-Dose Treatment, Intramuscularly*(Data compiled from reports of 14 investigators**)

	Dosage	Number of Patients	Number Cured	Percent Cured
Adult Males: Gonorrheal urethritis	**2 grams** **4 grams**	**475** **96**	**457** **93**	**96%** **97%**
Adult Females: Gonorrheal cervicitis	**4 grams**	**294**	**280**	**95%**

Diagnosis was confirmed by cultural identification of *N. gonorrhoeae* on Thayer-Martin medium in all patients. Criteria for cure: negative culture after at least 2 days post-treatment in males and at least 7 days post-treatment in females. Any positive culture obtained post-treatment was considered evidence of treatment failure even though the follow-up period might have been less than the periods cited above under "criteria for cure" except when the investigator determined that reinfection through additional sexual contacts was likely. Such cases were judged to be reinfections rather than relapses or failures. These cases were regarded as non-evaluatable and were not included in the table above.

The following reactions were observed during the single-dose clinical trials: soreness at the injection site, urticaria, dizziness, nausea, chills, fever and insomnia.

During multiple-dose subchronic tolerance studies in normal human volunteers, the following were noted: a decrease in hemoglobin, hematocrit and creatinine clearance; elevation of alkaline phosphatase, BUN and SGPT. In single and multiple-dose studies in normal volunteers, a reduction in urine output was noted. Extensive renal function studies demonstrated no consistent changes indicative of renal toxicity.

*4-grom doses were injected in two gluteol sites.

**Medical Research Files, The Upjohn Company

a chemically distinct antibiotic indicated specifically for treatment of acute gonorrheal urethritis and proctitis in males and cervicitis and proctitis in females when due to susceptible strains of *N. gonorrhoeae*

new Trobicin®

STERILE SPECTINOMYCIN DIHYDROCHLORIDE PENTAHYDRATE, UPJOHN

single-dose treatment for intramuscular use only

Sterile Trobicin®
(spectinomycin dihydrochloride pentahydrate)—For Intramuscular injection:
2 gm vials containing 5 ml when reconstituted with diluent. 4 gm vials containing 10 ml when reconstituted with diluent.

An aminocyclitol antibiotic active *in vitro* against most strains of *Neisseria gonorrhoeae* (MIC 7.5 to 20 mcg/ml). Definitive *in vitro* studies have shown no cross resistance of *N. gonorrhoeae* between Trobicin and penicillin.

Indications: Acute gonorrheal urethritis and proctitis in the male and acute gonorrheal cervicitis and proctitis in the female when due to susceptible strains of *N. gonorrhoeae*.

Contraindications: Contraindicated in patients previously found hypersensitive to Trobicin. Not indicated for the treatment of syphilis.

Warnings: Antibiotics used to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Patients should be carefully examined and monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected.

Safety for use in infants, children and pregnant women has not been established.

Precautions: The usual precautions should be observed with atopic individuals. Clinical effectiveness should be monitored to detect evidence of development of resistance of *N. gonorrhoeae*.

Adverse reactions: The following reactions were observed during the single-dose clinical trials: soreness at the injection site, urticaria, dizziness, nausea, chills, fever and insomnia.

During multiple-dose subchronic tolerance studies in normal human volunteers, the following were noted: a decrease in hemoglobin, hematocrit and creatinine clearance; elevation of alkaline phosphatase, BUN and SGPT. In single and multiple-dose studies in normal volunteers, a reduction in urine output was noted. Extensive renal function studies demonstrated no consistent changes indicative of renal toxicity.

Dosage and administration: Keep at 25°C and use within 24 hours after reconstitution with diluent.

Male—single 2 gram dose (5 ml) intramuscularly. Patients with gonorrheal proctitis and patients being re-treated after failure of previous antibiotic therapy should receive 4 grams (10 ml). In geographic areas where antibiotic resistance is known to be prevalent, initial treatment with 4 grams (10 ml) intramuscularly is preferred.

Female— single 4 gram dose (10 ml) intramuscularly.

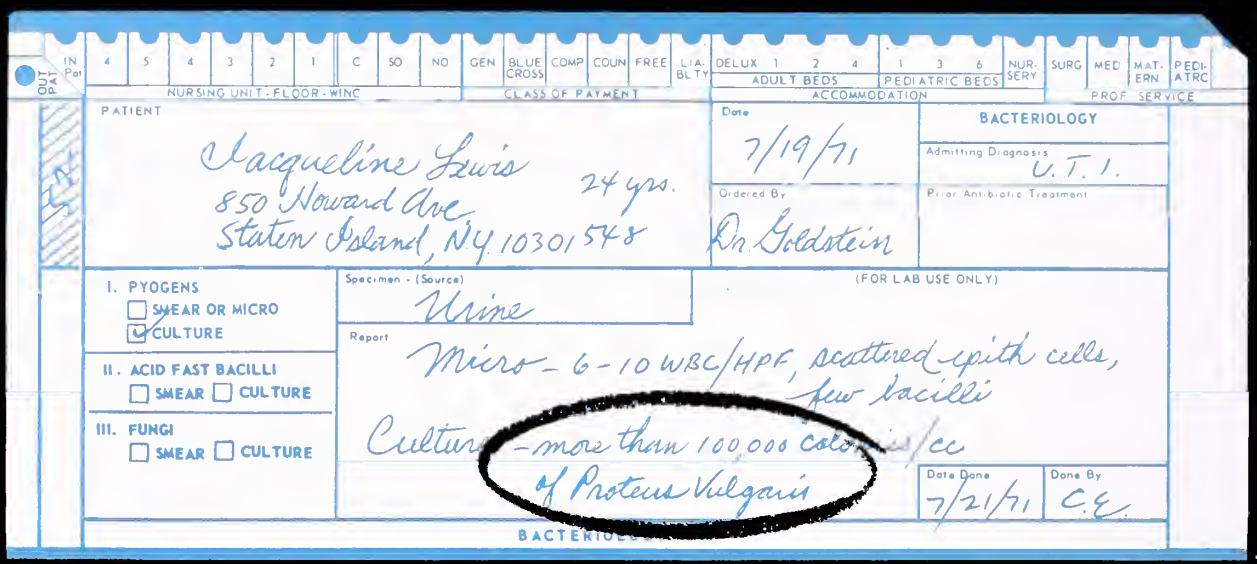
How supplied: *Vials, 2 and 4 grams —with ampoule of Bacteriostatic Water for Injection with Benzyl Alcohol 0.9%* w/v. Reconstitution yields 5 and 10 ml respectively with a concentration of spectinomycin dihydrochloride pentahydrate equivalent to 400 mg spectinomycin per ml. For intramuscular use only.

Susceptibility Powder—for testing *in vitro* susceptibility of *N. gonorrhoeae*.

Human pharmacology: Rapidly absorbed after intramuscular injection. A two-gram injection produces peak serum concentrations averaging about 100 mcg/ml at one hour with 15 mcg/ml at 8 hours. A four-gram injection produces peak serum concentrations averaging 160 mcg/ml at two hours with 31 mcg/ml at 8 hours.

For additional product information, see your Upjohn representative or consult the package insert. MED-8-1-S (LWB)

Upjohn
The Upjohn Company, Kolomozoo, Michigan 49001



OUT PAT | IN Pat | 4 | 5 | 4 | 3 | 2 | 1 | C | SO | NO | GEN | BLUE CROSS | COMP | COUN | FREE | LIA. BLTY | DELUX 1 2 4 | 1 3 6 | NUR. SERY | SURG | MED | MAT. ERN | PEDI. ATRC

NURSING UNIT - FLOOR - WING | CLASS OF PAYMENT | ACCOMMODATION (ADULT BEDS / PEDIATRIC BEDS) | PROF SERVICE

PATIENT

Jacqueline Lewis 24 yrs.
850 Howard Ave
Staten Island, NY 10301 548

Date: 7/19/71

BACTERIOLOGY

Admitting Diagnosis: U.T.I.

Ordered By: Dr. Goldstein

Prior Antibiotic Treatment:

I. PYOGENS
☐ SMEAR OR MICRO
☑ CULTURE

II. ACID FAST BACILLI
☐ SMEAR ☐ CULTURE

III. FUNGI
☐ SMEAR ☐ CULTURE

Specimen - (Source): Urine

(FOR LAB USE ONLY)

Report:
Micro - 6-10 WBC/HPF, scattered epith cells, few bacilli
Culture - more than 100,000 colonies/cc of Proteus Vulgaris

Date Done: 7/21/71

Done By: C.E.

BACTERIOL...

the choice is clear:

Pyopen®

(sterile disodium carbenicillin)

A serious urinary tract infection
Proteus vulgaris, confirmed by pure culture.
Fortunately, the strain proves sensitive to carbenicillin and the patient is not allergic to penicillins. The choice is clear: Pyopen.

Unlike other antibiotics currently available for the treatment of Gram-negative sepsis, there are no reports of nephrotoxicity or ototoxicity with Pyopen therapy. Particularly valuable in urinary infections, because of its exceptionally high urine levels, its effectiveness against *Ps. aeruginosa* and *Proteus* species has been amply confirmed by clinical experience and microbiologic studies.

Pyopen is a product of Beecham, the company which pioneered most of today's semi-synthetic penicillins. Your Beecham-Massengill representative would like to give you proof of our dedication to the concept of Total Service.

THE TOTAL SERVICE CONCEPT:
Beecham-Massengill's dedication to the concept of total service is exemplified by the Pyopen Program — offering valuable teaching-learning materials and an added measure of personal attention: *Gram-Negative Sepsis*, a multimedia presentation by leading American medical authorities... *A Profile of Pseudomonas*, a monograph for the clinical microbiologist... *24-hour consultation service* in matters relating to carbenicillin (phone: 201-778-9000)... *emergency supply*, a novel plan for assuring the continual availability of Pyopen to hospitals specifying this brand of carbenicillin.

For additional information about the Beecham-Massengill Total Service Concept see our representative or write to us directly.

BEECHAM-MASSENGILL PHARMACEUTICALS
Div. of Beecham Inc.
Bristol, Tennessee 37620

PRESCRIBING INFORMATION **Indications:** Primarily for treatment of infections due to susceptible strains of *Pseudomonas aeruginosa*, *Proteus* species (particularly indole-positive strains), and certain *Escherichia coli*. Clinical effectiveness has been demonstrated in the following infections when due to these organisms: Urinary tract infections; severe systemic infections and septicemia; acute and chronic respiratory infections (while clinical improvement has been shown, bacteriologic cures cannot be expected in patients with chronic respiratory disease and cystic fibrosis); soft tissue infections. Although PYOPEN (disodium carbenicillin) is indicated primarily in Gram-negative infections, its activity against Gram-positive organisms should be kept in mind when both Gram-positive and Gram-negative organisms are isolated (see Actions). **Note:** During therapy, sensitivity testing should be repeated frequently to detect the possible emergence of resistant organisms. **Actions:** Organisms found to be susceptible *in vitro* include: Gram-Negative Organisms-*Ps. aeruginosa*, *Proteus mirabilis*, *Pr. morganii*, *Pr. rettgeri*, *Pr. vulgaris*, *E. coli*, *Enterobacter* species, *Salmonella* species, *Hemophilus influenzae*, and *Neisseria* species. Gram-Positive Organisms-*Staphylococcus aureus* (nonpenicillinase-producing), *Staph. albus*, *Diplococcus pneumoniae*, Beta-hemolytic streptococci, and *Streptococcus faecalis*. Some newly emerging pathogenic strains of *Herellea*, *Mima*, *Citrobacter*, and *Serratia* have also shown *in vitro* susceptibility. Not stable in the presence of penicillinase. *Klebsiella* species are resistant. Some strains of *Pseudomonas* have developed resistance fairly rapidly. **Contraindications:** Known penicillin allergy. **Warnings:** Serious and occasional fatal hypersensitivity (anaphylactic) reactions have been reported in patients on penicillin therapy. These reactions are more apt to occur in individuals with a history of sensitivity to multiple allergens. There have been reports of individuals with a history of penicillin hypersensitivity reactions who have experienced severe hypersensitivity reactions when treated with a cephalosporin. Before therapy with a penicillin, careful inquiry should be made concerning previous hypersensitivity reactions to penicillins, cephalosporins, and other allergens. If an allergic reaction occurs, appropriate therapy should be instituted and discontinuance of disodium carbenicillin therapy considered, unless the infection is life threatening and only amenable to disodium carbenicillin therapy. The usual agents (antihistamines, pressor amines, and corticosteroids) should be readily available. **Usage in Pregnancy:** Safety for use in pregnancy has not been established. **Precautions:** As with any other potent agent, it is advisable to check periodically for organ-system dysfunction, including renal, hepatic, and hematopoietic systems, during prolonged therapy. Emergence of resistant organisms, such as *Klebsiella* species and *Serratia* species, which may cause superinfection, should be kept in mind. Each gram contains 4.7 mEq sodium; in patients where sodium restriction is necessary, such as cardiac patients, periodic electrolyte determinations and monitoring of cardiac status should be made. Observe patients with renal impairment for bleeding manifestations and adhere strictly to dosage recommendations. If bleeding manifestations appear, discontinue antibiotic and institute appropriate therapy. As with any penicillin preparation, the possibility of an allergic response, including anaphylaxis, may occur, particularly in a hypersensitive individual. **Administration:** Intramuscular injections should be made well within the body of a relatively large muscle (not into the lower and mid-third of the upper arm), and aspiration is necessary to help avoid inadvertent injection into a blood vessel. May be given by either intravenous injection or intravenous infusion. After reconstitution with Sterile Water for Injection unused portions should be discarded after 24 hours if stored at room temperature, or after 72 hours if refrigerated. **Adverse Reactions:** *Hypersensitivity Reactions*—Skin rashes, eosinophilia, pruritus, urticaria, drug fever, and anaphylactic reactions. *Gastrointestinal Disturbances*—Nausea. *Hemic and Lymphatic Systems*—Hemolytic anemia, thrombocytopenia, leukopenia, neutropenia, in uremic patients receiving high doses (24 gm/day), hemorrhagic manifestations associated with abnormalities of coagulation tests, such as clotting and prothrombin time. *Hepatic and Renal Studies*—SGOT and SGPT elevations have been observed, particularly in children. To date, no clinical manifestations of renal disorders have been demonstrated. *Central Nervous System*—Convulsions or neuromuscular irritability could occur with excessively high serum levels. *Local Reactions*—Pain at the site of injection, sometimes accompanied by induration. Vein Irritation and Thrombophlebitis—particularly when undiluted solution is injected directly into the vein. **How Supplied:** Available in 1 Gm. and 5 Gm. vials.
Before prescribing or administering, see package circular or PDR.

His first sit-ups in 15 years
sets up a visit to your office

When you see him, he can hardly straighten up, let alone work out at the gym. One more case of overexerting underexercised muscles. Valium (diazepam) as an adjunct in skeletal muscle spasm can help break the reflex cycle of spasm/pain/spasm. The sooner you can relieve your patient's skeletal muscle spasm, the sooner he can get back to getting into shape on a more graduated exercise program.

If your patient can't get to sleep, an *h.s.* dose of Valium added to the *t.i.d.* dosage may enable him to get a good night's rest.

VALIUM® (diazepam)

2-mg, 5-mg, 10-mg tablets
useful adjunct in skeletal
muscle spasm

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc
Nutley, N.J. 07110

Still serving...

Miltown®
(meprobamate)

WALLACE PHARMACEUTICALS
Cranbury, N.J. 08512

THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

Advances In Cancer Research, v. 14: Edited by George Klein. New York, 1971, Academic Press. 417 p. Price: $22.50.

Antimicrobial Agents and Chemotherapy: Edited by Gladys L. Hobby, Bethesda, Maryland, 1970, American Society for Microbiology. 545 p. Price: $13.50.

Atlas of Human Anatomy: By Luis Lopez-Antunez. Philadelphia, 1971, Saunders. 366 p. Price: $18.50.

Basic Pathology: By Stanley Robbins. Philadelphia, 1971, Saunders. 574 p. Price: Not Set.

Curable and Incurable Neurotics: By Edmund Bergler. New York, 1961, Liveright Publisher. 471 p. Price: $8.95.

Diseases of The Newborn: By Alexander Schaffer. 3rd ed. Philadelphia, 1971, Saunders. 919 p. Price: $27.50.

Diverticular Disease of The Colon (v. 11 Major Problems in Surgery): By Bentley P. Colcock. Philadelphia, 1971, Saunders. 135 p. Price: $9.00.

Early Orthopaedic Surgeons of America: By Alfred R. Shands, Jr. St. Louis, 1970, Mosby. 190 p. Price: $15.00.

General Ophthalmology: By Daniel Vaughan. 6th ed. Los Altos, California, 1971, Lange. 316 p. Price: $8.00.

Handbook of Obstetrics and Gynecology: By Ralph Benson. 4th ed. Los Altos, California, 1971, Lange. 774 p. Price: $6.50.

Handbook of Physical Medicine and Rehabilitation: By Frank H. Krusen and others. 2nd ed. Philadelphia, 1971, Saunders. 920 p. Price: $22.50.

Healing and Wholeness: By D. Wayne Montgomery. Richmond, Virginia, 1971, John Knox Press. 240 p. Price: $7.50.

Histology of The Human Eye: By Michael J. Hogan and others. Philadelphia, 1971, Saunders. 687 p. Price: $34.00.

The Human Heart: By Brendan Phibbs. 2nd ed. St. Louis, 1971, Mosby. 247 p. Price: $5.75.

Immunological Disorders of The Nervous System (v. 49, Research Publications Association for Research in Nervous and Mental Disease): By Lewis P. Howland. Baltimore, 1971, Williams and Wilkins. 470 p. Price: $25.00.

Management of Juvenile Diabetes Mellitus: By Howard S. Traisman. 2nd ed. St. Louis, 1971, Mosby. 223 p. Price: $19.75.

Manual of Clinical Mycology: By Norman F. Conant and others. 3rd ed. Philadelphia, 1971, Saunders. 755 p. Price: $12.00.

Medical Offenders: By Howard and Martha Lewis. New York, 1970, Simon and Schuster. 377 p. Price: $7.95.

Methods of Ossiculoplasty: By James R. Tabor. Springfield, Ill., 1971, Thomas. 88 p. Price: Review.

Psychiatric Emergencies: By P. K. Bridges. Springfield, Ill., 1971, Thomas. 195 p. Price: Review.

Review of Medical Physiology: By William F. Ganong. 5th ed. Los Altos, California, 1971, Lange. 573 p. Price: $8.50.

Review of Physiological Chemistry: By Harold A. Harper. 13th ed. Los Altos, California, 1971, Lange. 529 p. Price: $8.00.

Sexuality of Women: By Paul H. Gebhard and others. New York, 1970, Stein and Day. 144 p. Price: $5.95.

Stylebook—Editorial Manual: By American Medical Association. 5th ed. Chicago, 1971, AMA. 118 p. Price: $2.00.

Book Review

Physicians' Guide to Prescription Prices. Published by WILCOM Educational Development Co., Fayetteville, N.Y. Price $7.95 by mail. A new book that provides physicians with prices their patients may expect to pay for over 7,000 different dosage forms and strengths of brandname as well as generic drugs. It is designed to aid physicians in helping their patients to save money on prescription drugs.

According to the publisher, the physician will now have access for the first time to reliable information concerning the different prices of various drugs. Not only can he now make prescribing decisions on the basis of safety and effectiveness, but also by comparing the prices of numerous other equally suitable therapeutic agents.

WILCOM's studies indicated that, as the general cost of living continues to rise, physicians are becoming more concerned about the cost of drugs they prescribe. The cost probably has been the principal reason for the upsurge in generic prescription writing.

In addition to prices, the *Guide* provides corollary medical prescribing information. This data is grouped in a "Medical Almanac" section that includes a generic cross reference index; weights and measures; conversion tables; growth and development charts; Poison Control Centers, with emergency telephone numbers, and an extensive collection of other essential medical prescribing data—all compiled in one book for the physician's convenience. It is being widely advertised in medical journals and will be revised every six months. For further information write WILCOM, Ltd., 6900 East Genesee St., Fayetteville, New York 13066.

Graduate Medical Assistants

Available for placement now, seven-month intensive preparation, including one month internship in a doctor's office.

We welcome your inquiries!

Contact Director of Placements at (303) 222-1526

Colorado College of Medical and Dental Assistants

655 Broadway, Denver, Colorado

MEDICAL SCHOOL NOTES

University of Nevada School of Medical Sciences

Medical education in Nevada began in September 1971 with the opening of the School of Medical Sciences at the University of Nevada, Reno.

It will mark the first time that medicine has been taught in the State of Nevada, although premedical, medical technology, nursing, and several allied health programs have been functioning in Nevada for several years.

The first class in the Two-Year Medical Curriculum consists of 32 students, all Nevadans and representing all parts of the state. Upon completion of the Nevada curriculum, these students will transfer to universities in other states where the Doctor of Medicine degree is granted.

Plans are to admit at least 36 more students in September of 1972. Each year thereafter, 48 or more new students will be admitted.

* * * * *

Construction is progressing on the new Health Related Sciences Building, to be shared by the School of Medical Sciences and College of Agriculture.

The structure should be completed on schedule for the summer of 1972, in time for use by the second class admitted to the two-year Medical Curriculum.

The new building will place emphasis on individualized instruction through the use of modern teaching aids. Film and tape will be available in unique self-learning centers designed to allow the medical student to progress at his own pace with the finest in materials available to assist him.

In addition to laboratories, the 24,120-square-foot structure will house offices and seminar rooms.

The building is being financed entirely through grants from non-appropriated sources such as the National Institutes of Health of the Department of Health, Education and Welfare, and the Kellogg Foundation.

The new Health Related Sciences Building is the only new structure planned for the developing Health Sciences Program.

The School of Medical Sciences and the Health Sciences Program are unique in that funds are being directed to the development of curriculum and a teaching faculty instead of costly buildings and equipment already available in the community.

This is being done through the use of already existing community resources and facilities, through cooperation with local hospitals and physicians. Thus, community medical facilities, not a

university hospital or expensive health care center, will provide the clinical training and experience necessary to the health sciences curriculum.

Because of this, the resulting savings can be passed on to the student and the taxpayer in the form of a better faculty and a better curriculum that emphasizes a practicum of community service through work within the community, not just in the sequestered environment of the classroom.

University of New Mexico

Twenty thousand school children in New Mexico will be screened this year to see if their heart sounds are normal. According to national calculations, at least 40 may have previously unknown congenital or rheumatic heart disease. The heart testing is sponsored by the New Mexico Regional Medical Program, with support from the New Mexico Heart Association.

The screening is done with a small, briefcase-sized computer called a phonocardioscan. A very sensitive microphone attached to the phonocardioscan is placed at four different locations on the chest to pick up heart sounds or murmurs. The test takes about three minutes. If the phonocardioscan indicates a child's heart sounds may be outside normal limits, he is double-checked. Those children whose heart sounds are still suspect are checked by one of the program cardiologists and if evidence of serious heart trouble is found, the child is referred to his own physician or to a cardiac clinic.

During the past year, approximately 12,000 children in 18 communities were screened. Of these, 750 were seen by the program's cardiologists, and 43 were referred on to private physicians because they were suspected of having a significant cardiac murmur or other evidence of cardiac disease.

The RMP heart-testing program is in its third year of operation. Marcy Earnest, RN, serves as fulltime coordinator of the screening activities. Dora Jacobs, assistant coordinator, is in charge of training the volunteer community workers.

* * * * *

Approximately ten thousand pediatricians in the United States have received a new book on mental retardation co-edited by a faculty member of the University of New Mexico School of Medicine.

Dr. J. Albert Browder, UNM assistant professor of pediatrics, helped to edit the new book on "The Pediatrician and The Child with Mental Retardation" with two other medical doctors: Dr. Robert C. Kugel, dean of the Nebraska School of Medicine, and Dr. Richard Koch, director of the Children's Development Center at the Los Angeles Children's Hospital. The book is being published by the American Academy of Pediatricians and has been mailed to each academy member.

Dr. Browder is medical director of the Mental Development Center, a part of the Bernalillo County Mental Health Center which is staffed by the UNM Department of Psychiatry. He worked closely with staff members of the Programs for Children unit at the Center in preparing the book.

"Mental retardation is a family-centered problem in which medical, psychological, social, educational, and communication skills are needed to provide integrated care to affected children in their own community whenever possible," Dr. Browder said. The emphasis in the new book is on the importance of a multidisciplinary approach to the child with mental retardation, he said.

University of Utah Medical Center

SPENCER S. ECCLES MEDICAL SCIENCES LIBRARY DEDICATION

Among the dignitaries who participated in the formal dedication of the new Spencer S. Eccles Medical Sciences Library of the University of Utah were Dr. Martin M. Cummings, MD, director of the National Library of Medicine; Mrs. Calvin L. Rampton; University of Utah President Alfred C. Emery, and members of the Eccles family. Dr. Kenneth B. Castleton, former vice president for Medical Affairs, presided at the dedication.

Principle funding for the construction of the new library came from a $1,121,450 federal grant awarded in January, 1969, under the Medical Library Assistance Act of 1965. Matching funds for the remainder of the cost came from private donations including $250,000 from the Spencer S. Eccles family, $100,000 from the Commonwealth Fund, $75,000 from the Markle Foundation, and $50,000 from the Utah Medical Foundation. No state funds were used in the construction of the building.

The library is on three levels with 45,000 gross and 34,500 net square feet. It is designed to serve students, faculty and staff of the Colleges of Medicine, Nursing and Pharmacy and University Hospital. The present stack capacity of the library is 150,000. The present library collection is approximately 80,000 volumes. The library has 310 study places of which 127 are at individual carrels. There are five group study rooms, a typing room, five faculty carrels and 220 stack lockers for students. Each study carrel is located adjacent to outlets which can be used for television and other audio visual equipment when required. There are two lounges for informal reading and study. A History of Medicine room houses the rare book collection and an adjoining lounge provides a meeting room for journal clubs and local medical groups.

Besides being a major addition to the educational programs of the University of Utah, the new facility is also an important community resource. Area physicians, constantly faced with an expanding volume of new medical information now may take advantage of a complete and efficient medical library service especially designed to meet the needs of the practicing physician.

Picture of low back pain

treated with Parafon Forte® TABLETS

Paraflex® (chlorzoxazone)* 250 mg.
Tylenol® (acetaminophen) 300 mg.

Parafon Forte tablets help to relieve pain, restore mobility... stop pain-spasm feedback

Here is why. PARAFON FORTE provides:

a nonsalicylate analgesic equal to aspirin for relief of pain,[1,2] yet unlikely to cause the gastric irritation[2,3] or increased bleeding time[4] associated with aspirin therapy.

and a skeletal muscle relaxant shown in extensive clinical studies to be useful in a variety of low back disorders[5-7] ...but which is not an antihistamine or tranquilizer derivative and is unlikely to produce a tranquilizing or sedative effect.[8]

Prescribe PARAFON FORTE for effective spasmolysis and analgesia in acute sprains, strains and myalgias of the lower back, including acute exacerbations of chronic conditions. Your patients will appreciate the restored comfort and freedom of movement it usually provides.

Contraindications: Sensitivity to either component. ***Warnings:*** *Usage in Pregnancy*—Use in woman of child-bearing potential only when potential benefits outweigh possible risks. ***Precautions:*** Exercise caution in patients with known allergies or history of drug allergies. If a sensitivity reaction or signs or symptoms suggestive of liver dysfunction are observed, the drug should be stopped. ***Adverse Reactions:*** Occasionally, drowsiness, dizziness, lightheadedness, malaise, overstimulation or gastrointestinal disturbances may be noted; rarely, allergic-type skin rashes, petechiae, ecchymoses, angioneurotic edema or anaphylactic reactions. In rare instances, *Paraflex* (chlorzoxazone) may possibly have been associated with gastrointestinal bleeding. While *Paraflex* (chlorzoxazone) and chlorzoxazone-containing products have been suspected as being the cause of hepatic toxicity in approximately eighteen patients, it was not possible to state that the dysfunction was or was not drug induced. ***Usual Adult Dosage:*** Two tablets q.i.d. ***Supplied:*** Scored, light green tablets, imprinted "McNEIL" —bottles of 100.

References: **1.** Batterman, R. C., and Grossman, A. J.: Fed. Proc. *14*:316, 1955. **2.** Goodman, L. S., and Gilman, A., ed.: The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970. **3.** Vickers, F. N.: Gastroint. Endosc. *14*:94, 1967. **4.** Mielke, C. H., Jr., and Britten, A. F. H.: New Engl. J. Med. *282*:1270, 1970 (Corresp.). **5.** Kestler, O. C., and Gyurik, J.: Industr. Med. Surg. *21*:372, 1962. **6.** Forster, S., et al.: Amer. J. Orthop. *2*:285, 1960. **7.** Data on file, McNeil Laboratories, Inc. **8.** Friend, D. G.: Clin. Pharmacol. Ther. *5*:871, 1964.

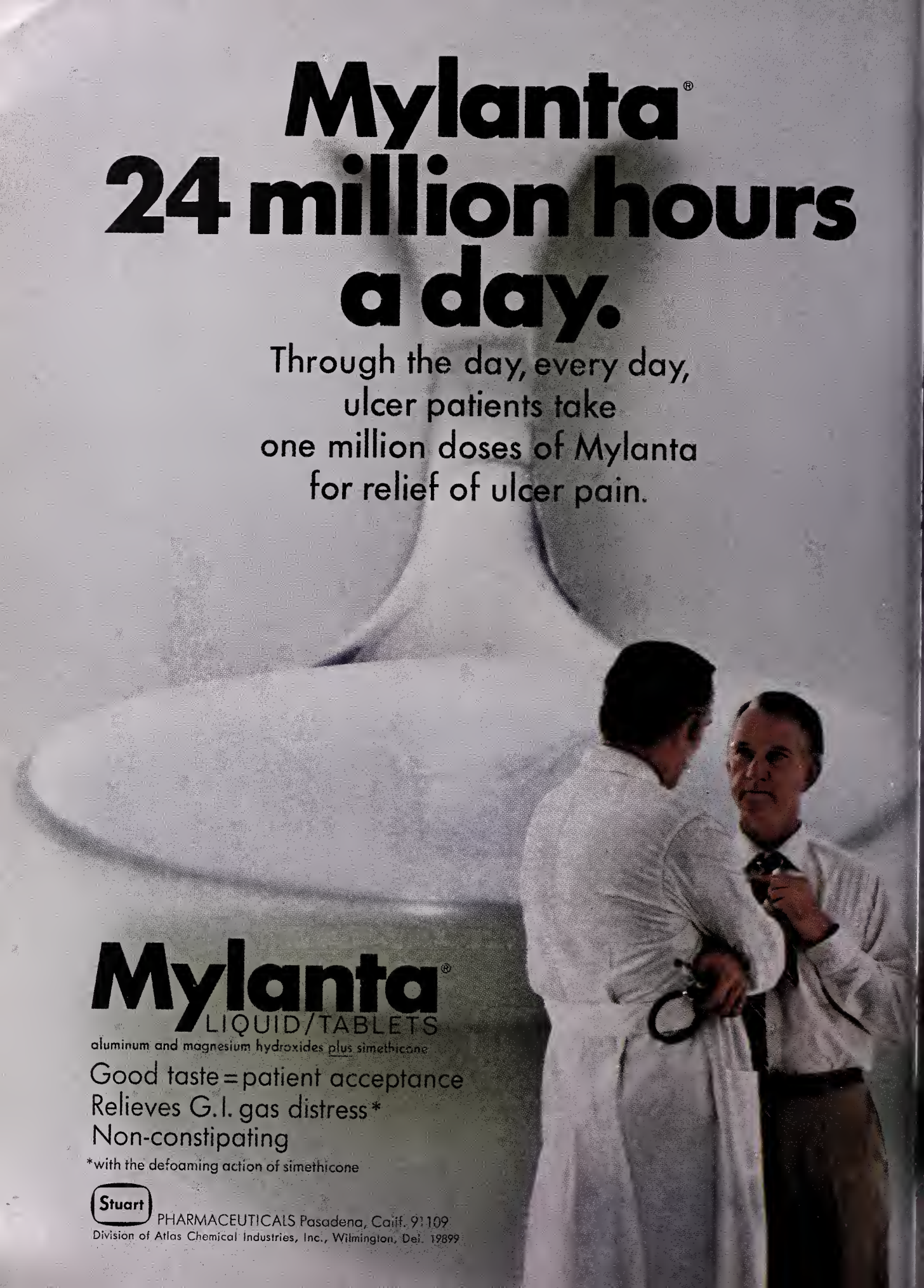
*U.S. PATENT NO. 2,895,877

McNEIL LABORATORIES, INC., FT. WASHINGTON, PA. 19034

McNEIL

Mylanta®
24 million hours a day.

Through the day, every day,
ulcer patients take
one million doses of Mylanta
for relief of ulcer pain.



Mylanta®
LIQUID/TABLETS

aluminum and magnesium hydroxides plus simethicone

Good taste = patient acceptance
Relieves G.I. gas distress*
Non-constipating

*with the defoaming action of simethicone

Stuart PHARMACEUTICALS Pasadena, Calif. 91109
Division of Atlas Chemical Industries, Inc., Wilmington, Del. 19899

LIFORNIA MEDICAL ASSOCIATION
CONJUNCTION WITH THE 101ST ANNUAL SESSION
ESENTS IN SAN FRANCISCO . . .

NO REGISTRATION FEE

SYMPOSIA • SCIENTIFIC SECTION MEETINGS • HOUSE OF DELEGATES • EXHIBITS

SPECIAL CONFERENCES • GENERAL SESSIONS • REUNIONS

AIL
DAY

application for HOTEL ACCOMMODATIONS

SAN FRANCISCO HILTON HOTEL

	Main Building	New Tower
Singles	$22-38	$37-43
Twins or doubles	$28-45	$44-49
Additional person in room	$ 8	$ 8
1 Bedroom suites	$74 & up	$97 & up
2 Bedroom suites	$97 & up	$147 & up

SEND TO: SAN FRANCISCO HILTON HOTEL RESERVATIONS
Mason at O'Farrell Streets, San Francisco, Ca. 94102

Please reserve the following accommodations for the CMA's 1972 Annual Session in San Francisco, February 12-16, 1972:

PLEASE CHECK PREFERENCE

☐ MAIN BUILDING ☐ MAIN BUILDING FLOOR 5-11 ☐ NEW TOWER

(INSIDE FREE PARKING AVAILABLE FLOORS 5-11 MAIN BUILDING)

Single Bedroom $.....Twin-Bedded $.....Double Bed $.....Suite $.....

Arrival (date) ..... Hour ..... a.m. p.m. Departure (date) ..... Hour ..... a.m. p.m.

THE NAME AND ADDRESS OF EACH HOTEL GUEST MUST BE LISTED. Include names and addresses of *each* person in a double or twin-bedded room, and names and addresses of *all other persons* for whom you are requesting reservations.

Your Name: .....

Address: .....

T_4 IS THE PREDICTABLE HORMONE BECAUSE IT LOVES PROTEIN.

SYNTHROID® (sodium levothyroxine) is pure synthetic T_4, the major circulating thyroid hormone. It is reliable to use because of its affinity for protein-binding sites in the blood. T_3 is more fickle. Sometimes it binds. Sometimes it doesn't. T_4 more *predictably* binds to protein.

Synthroid®
(sodium levothyroxine)

ALL THYROID-FUNCTION TESTS ARE USEFUL IN MONITORING SYNTHROID THERAPY

No calculations are needed, test interpretation is simple.

Any of the commonly used T_4 thyroid function tests (P.B.I., T_4 By Column, Murphy-Pattee, Free Thyroxine) are useful in monitoring patients on T_4 because they *all* measure T_4. Patients on SYNTHROID are thereby easy to monitor because their results will fall within predictable, elevated test ranges. Of course, clinical assessment is the best criterion of the thyroid status of the drug-treated patient.

TEST	HYPOTHYROID	SYNTHROID THERAPEUTIC NORMAL
P.B.I.	Less than 4 mcg %	6-10 mcg %
T_4 By Column	Less than 3 mcg %	7-9 mcg %
T_3 (Resin)	Less than 25%	27-35%
T_3 (Red Cell)	Less than 11%	11.5-18%
Free Thyroxine	Less than 0.7 nanograms %	0.7-2.5 nanograms %
Murphy-Pattee	Less than 2.9 mcg %	4-11 mcg %

TWO GOOD REASONS WHY THE ROAD TO NORMALIZED THYROID STATUS IS SO SMOOTH FOR THE SYNTHROID PATIENT.

(1) The onset of action of T_4 is gradual. It has a long in vivo "half-life" of over six days. (Occasional missed doses or accidental double-doses are of les concern because of this factor)[1]; (2) since SYNTHROID contains onl T_4, the potential for metabolic surges traceable to more potent iodides (T_3) is eliminated.

AS WITH ANY THYROID PREPARATION, CAUTIOUS OBSERVATION OF THE PATIENT DURING THE BEGINNING OF THERAPY WILL ALERT THE PHYSICIAN TO ANY UNTOWARD EFFECTS.

Side effects, when they do occur, are related to excessive dosage. Caution should be exercised in administering the drug to patients with cardiovascular disease. Reac the accompanying prescribing information for additional data or write Flint Laboratories.

Choose the Smooth Road ...to thyroid replacement therapy

ATIENTS CAN BE UCCESSFULLY IAINTAINED ON A RUG CONTAINING HYROXINE ALONE.

yroxine (T_4) is, as you know, e major circulating hormone roduced by the thyroid gland. $_3$ is also produced, in smaller mounts, and is active at the llular level. For years it has been working hypothesis among ndocrinologists that T_4 is nverted by the body to T_3. In 970 this process, called deiodination," was demonstrated y Sterling and Braverman[2]. $_4$ does convert to T_3, though the recise quantities are still being udied.

The conversion has been inically demonstrated during the dministration of T_4 to athyrotic atients. Their thyroid status is ormalized on SYNTHROID alone, et the presence of T_3 in these atients has been clearly shown.

WHY DOES SYNTHROID COST LESS THAN SYNTHETIC DRUGS CONTAINING T_3?

Very simple. T_3 costs more to make synthetically than does T_4. So it is economically necessary for a synthetic thyroid medication containing T_3 to cost more than one containing T_4 alone. Synthetic combinations cost patients nearly 50% more than SYNTHROID[4] because the T_3 costs more to start with; also there is the additional expense of formulating a tablet containing two active ingredients.

1. Latiolais, C. J., and Berry, C. C.: Misuse of Prescription Medications by Outpatients, *Drug Intelligence & Clin. Pharm.* 3:270-7, 1969.
2. Braverman, L. E., Ingbar, S. H., and Sterling, K.: Conversion of Thyroxine (T4) to Triiodothyronine (T3) in Athyreotic Human Subjects, *J. Clin. Invest.* 49:855-64, 1970.
3. American Druggist BLUEBOOK, March, 1971.

THE FACTS ARE CLEAR AND HERE S OUR OFFER.

FACTS:
Synthetic thyroid drugs are an mprovement over animal gland roducts. Patients, even athyrotic ones, can be completely maintained on SYNTHROID (T_4) alone. Thyroid function tests are easy to interpret since they are *predictably* elevated when the patient adheres to SYNTHROID. Of all synthetic thyroid drugs, SYNTHROID is the most economical to the patient.

E

OFFER:
Free TAB-MINDER medication dispensers to start or convert all your hypothyroid patients to SYNTHROID. Free information to physicians on role of thyroid function tests in a new booklet titled: "Guideposts to Thyroid Therapy." Ask us.

Name

Address

City State Zip

Indications: SYNTHROID (sodium levothyroxine) is specific replacement therapy for diminished or absent thyroid function resulting from primary or secondary atrophy of the gland, congenital defect, surgery, excessive radiation, or antithyroid drugs. Indications for SYNTHROID (sodium levothyroxine) **Tablets** include myxedema, hypothyroidism without myxedema, hypothyroidism in pregnancy, pediatric and geriatric hypothyroidism, hypopituitary hypothyroidism, simple (nontoxic) goiter, and reproductive disorders associated with hypothyroidism. SYNTHROID (sodium levothyroxine) **for Injection** is indicated for intravenous use in myxedematous coma and other thyroid dysfunctions where rapid replacement of the hormone is required. The injection is also indicated for intramuscular use in cases where the oral route is suspect or contraindicated due to existing conditions or to absorption defects, and when a rapid onset of effect is not desired.

Precautions: As with other thyroid preparations, an overdosage may cause diarrhea or cramps, nervousness, tremors, tachycardia, vomiting and continued weight loss. These effects may begin after four or five days or may not become apparent for one to three weeks. Patients receiving the drug should be observed closely for signs of thyrotoxicosis. If indications of overdosage appear, discontinue medication for 2-6 days, then resume at a lower dosage level. In patients with diabetes mellitus, careful observations should be made for changes in insulin or other antidiabetic drug dosage requirements. If hypothyroidism is accompanied by adrenal insufficiency, as Addison's Disease (chronic subcortical insufficiency), Simmonds's Disease (panhypopituitarism) or Cushing's syndrome (hyperadrenalism), these dysfunctions must be corrected prior to and during SYNTHROID (sodium levothyroxine) administration. The drug should be administered with caution to patients with cardiovascular disease; development of chest pains or other aggravations of cardiovascular disease requires a reduction in dosage.

Contraindications: Thyrotoxicosis, acute myocardial infarction. **Side effects:** The effects of SYNTHROID (sodium levothyroxine) therapy are slow in being manifested. Side effects, when they do occur, are secondary to increased rates of body metabolism; sweating, heart palpitations with or without pain, leg cramps, and weight loss. Diarrhea, vomiting, and nervousness have also been observed. Myxedematous patients with heart disease have died from abrupt increases in dosage of thyroid drugs. Careful observation of the patient during the beginning of any thyroid therapy will alert the physician to any untoward effects.

In most cases with side effects, a reduction of dosage followed by a more gradual adjustment upward will result in a more accurate indication of the patient's dosage requirements without the appearance of side effects.

Dosage and Administration: The activity of a 0.1 mg. SYNTHROID (sodium levothyroxine) TABLET is equivalent to approximately one grain thyroid, U.S.P. Administer SYNTHROID tablets as a single daily dose, preferably after breakfast. In hypothyroidism without myxedema, the usual initial adult dose is 0.1 mg. daily, and may be increased by 0.1 mg. every 30 days until proper metabolic balance is attained. Clinical evaluation should be made monthly and PBI measurements about every 90 days. Final maintenance dosage will usually range from 0.2-0.4 mg. daily. In adult myxedema, starting dose should be 0.025 mg. daily. The dose may be increased to 0.05 mg. after two weeks and to 0.1 mg. at the end of a second two weeks. The daily dose may be further increased at two-month intervals by 0.1 mg. until the optimum maintenance dose is reached (0.1-1.0 mg. daily).

Supplied: Tablets: 0.025 mg., 0.05 mg., 0.1 mg., 0.15 mg., 0.2 mg., 0.3 mg., 0.5 mg., scored and color-coded, in bottles of 100, 500, and 1000. Injection: 500 mcg. lyophilized active ingredient and 10 mg. of Mannitol, N.F., in 10 ml. single-dose vial, with 5 ml. vial of Sodium Chloride Injection, U.S.P., as a diluent. SYNTHROID (sodium levothyroxine) **for Injection** may be administered intravenously utilizing 200-400 mcg. of a solution containing 100 mcg. per ml. If significant improvement is not shown the following day, a repeat injection of 100-200 mcg. may be given.

FLINT LABORATORIES
DIVISION OF TRAVENOL LABORATORIES, INC.

When doctors speak... Medicenter listens.

Medicenters are dedicated to the finest in sub-acute patient care for short term recovery from illness or injury. We recognize and practice the fact that each of our patients is under the supervision of his or her personal physician.

Based upon recommendations we've received from many physicians, we arrange and provide for easy transfer from hospital to Medicenter. We're conveniently located close to hospital complexes. Our forms and charts are thorough but simplified. We have a fully-equipped and staffed physical therapy department. Lab, X-ray and pharmacy services are available.

That's why we say "when doctors speak...Medicenter listens." May we hear from you?

MEDiCENTER
OF AMERICA
®

Medicenter of America
1920 High Street
Denver, Colorado 80218

1100 Patterson Road
Grand Junction, Colorado 81501

Upjohn again reduces the price of E-Mycin®

Once again Upjohn has been able to reduce the price of erythromycin without reducing the quality you expect from an Upjohn product.

Upjohn

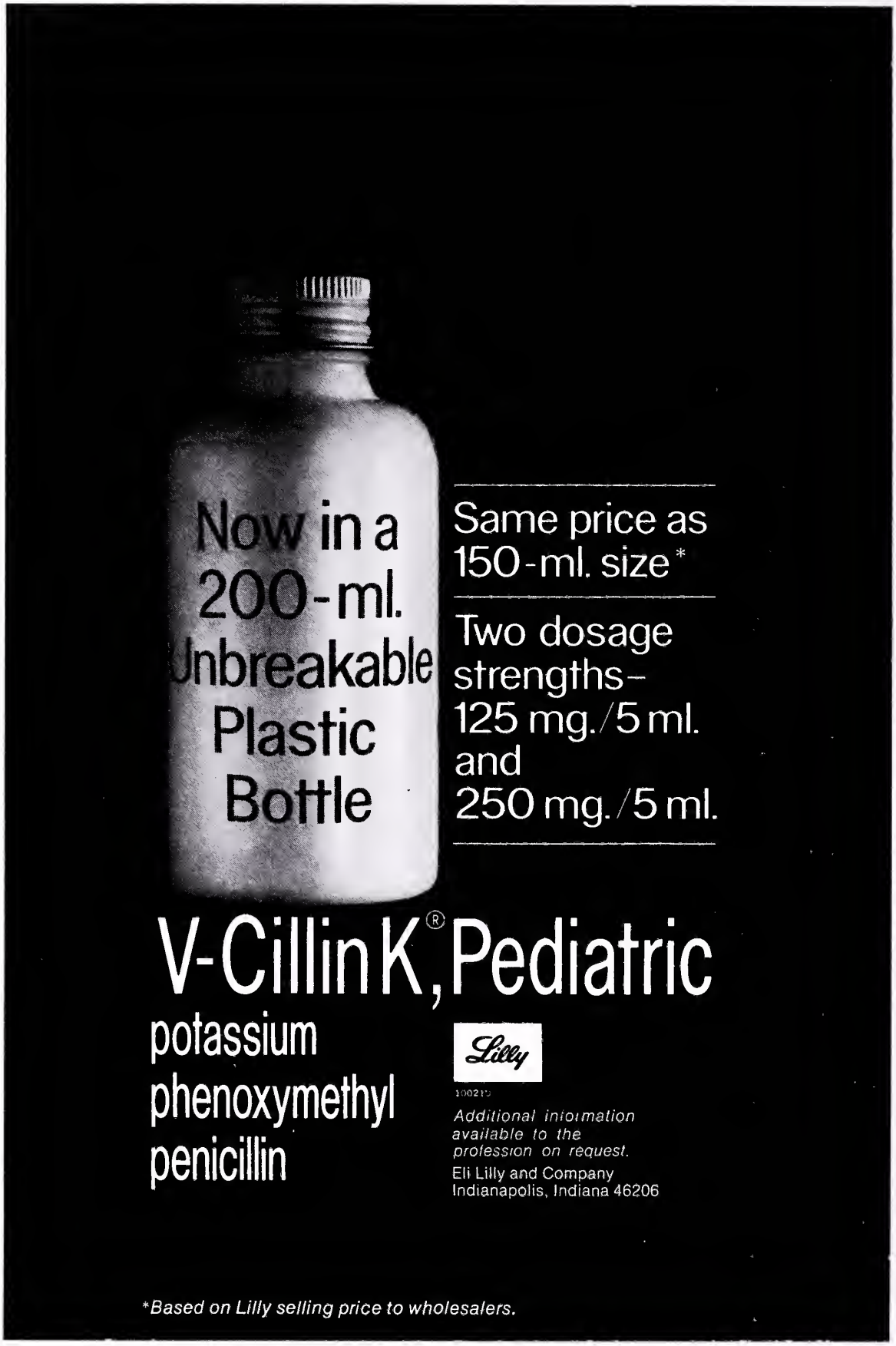
E-Mycin®

(erythromycin, Upjohn)

Available in 250 mg tablets

THE UPJOHN COMPANY
KALAMAZOO, MICHIGAN 49001

© 1971 The Upjohn Company
JA71-1711


Now in a
200-ml.
Unbreakable
Plastic
Bottle
Same price as
150-ml. size*
Two dosage
strengths–
125 mg./5 ml.
and
250 mg./5 ml.
V-Cillin K,® Pediatric
potassium
phenoxymethyl
penicillin
Lilly
Additional information
available to the
profession on request.
Eli Lilly and Company
Indianapolis, Indiana 46206
*Based on Lilly selling price to wholesalers.

AMA President Hall speaks in Washington

PHYSICIANS OF THE Rocky Mountain region are increasingly proud of American Medical Association's President, Wesley W. Hall of Reno, Nevada. We have noted his name in the nation's press and, of course, the many communications from the AMA and in numerous medical publications. It is a momentous year for our native son; we expect him to live through it and to emerge as an even greater man and citizen than before the honor of leading our parent organization.

Dr. Hall recently spoke before the National Press Club in Washington, D.C., attended by newsmen, health organization representatives, and federal officials. He praised the analysis of health problems in the news. It is favorable that AMA's Medicredit bill has over 150 sponsors. This is encouraging, but it doesn't mean that the bill will be enacted. It does mean that many congressmen and senators agree with it in principle. The plan makes available a private program of medical care and health protection to everyone under 65. It would cover both ordinary and catastrophic medical expenses.

Dr. Hall mentioned to this important body of listeners that the people of America, when fully informed, should be trusted to make the right decisions. The press has approached the subject with understanding and increasing maturity. Their skepticism is conspicuous but most encouraging is its open mind and a "growing sophistication" in health care issues.

*A New Source of Medical Manpower?**

A RECORD 12,000 STUDENTS began medical school this fall, the highest number in the history of medical education. There had been 25,000-26,000 applications—also a record. According to statistics compiled by the AMA Division of Medical Education and the Association of American Medical Colleges about 40 per cent of applicants were accepted. It has not been said how many qualified applicants were not accepted, but it is probably about 8,000. The number is increasing, according to a report from the AMA Board of Trustees accepted by the House of Delegates. Medical College Admission Test scores indicate that approximately 75 per cent of applicants are qualified. Five new medical schools opened this fall, making a total of 108 with a total enrollment of 43,063. Seven schools are two-year schools of basic medical sciences. Twenty-five have programs leading to the MD degree in less than four years. Another eight or more new schools will probably be opened in 1972.

It is interesting and appalling to note reasons for so many applicants failing to win places in medical schools. There were 4,576 applications for 160 places at Northwestern University this fall. Dr. Edward S. Petersen, associate dean and chairman of the Admissions Committee, stated that half of the available places must go to in-state students. So it is with universities receiving state support funds. Over half of the candidates were qualified for acceptance. Dr. Petersen believes that

*See a related article upon the subject of a new category of health professionals on page 25.

about 25 per cent of rejected candidates nationally are well qualified, so Northwestern's experience is not unusual. Their tuition is $2,700 and there is now a decrease in federal scholarships and loans. Considering the fact that each candidate applies to more than one school, and more candidates from other fields are applying, gross figures are misleading. Of some 300 such candidates applying at Northwestern only one or two were accepted, primarily because most of them were over-age (the school's deadline is 30). Applicants from minority classifications, or under-represented groups, find it easier to get into medical schools than others generally over the country. Northwestern accepted 13 black students this fall; last year it was five.

Probably as many as 45 per cent of rejectees get into medical school somewhere; some probably enter a foreign school. Most admission directors are saddened to see well-qualified candidates fail to be admitted.

The above figures are particularly regrettable in view of the fact, as we have stated editorially,† that part of the problem of inadequate medical care for the population of our country is too few doctors. One factor, probably greater than this, is maldistribution. We have also explored the question of ancillary services and training of physicians' aides comparable perhaps to mid-wifery in Britain and corpsmen in the armed forces. Such people provide great and sometimes indispensable services. We believe that this concept of medical care should and will increase. In July, 1972, a new category of health professionals will be equipped to join physicians in private practice and public health facilities to provide increased, and we believe improved, health care to people of all ages. The Child Health Associate Program at the University of Colorado Medical Center has already begun. Legislation defining and regulating their practice is endorsed by the Colorado Medical Society, Academy of General Practice, Osteopathic Association and Colorado Chapter of the American Academy of Pediatrics. The Associates are expected to be able to diagnose and treat most common problems in ambulatory pediatrics. This may not meet the approval of the majority of our colleagues, at least in the beginning, but we believe that time will establish this concept as one of the practical solutions in providing adequate medical care to the people of America.

A possible workable plan would be recruitment of rejectees from medical schools into educational programs such as this. People who have shown the inclination and interest to apply for admission to medical schools would, in our opinion, be most logical candidates for qualification in ancillary services within our profession. We hope that this possibility will be explored and a great reservoir of candidates not overlooked. In fact, it may be feasible to encourage the rejectees in this direction, greatly simplifying and improving recruitment and growing success of this new category of health professionals to provide direct patient care.

†Rocky Mountain Medical Journal, May, 1971, page 22.

More About the "Right to Die"

READERS WILL RECALL our "right to die" editorials and Letters to the Editor in the past. The subject comes and goes, now and again catching our eye.

In Florida a 72-year-old woman refused blood transfusions and appealed to the court to halt treatment that caused pain. She won — and died a day later. The judge in Miami ruled that she had the right to live or die with dignity and her physicians could not perform cut-downs or remove her spleen without permission of her nearest responsible relatives. Her primary physician and hospital asked for a ruling that would release them from liability under a criminal law if they were accused of assisting the patient in suicide. Thus, an understanding followed between the patient, her family, and all concerned. Compassion of the doctors was deeply appreciated by the family.

This is an angle not previously mentioned in our editorial comment. It points up something of the legal complexities behind many of our decisions.

The child health associate

A new category of health professional to provide direct patient care

Louis L. Fine, MD,* Denver

Among answers to manpower shortage in medical care and maldistribution of physicians is this program at the University of Colorado Medical Center. We believe it is applicable to our six-state area. Another subject for exploration is whether rejectees among medical school applicants could be recruited into this hopeful activity.

AN URGENT NEED EXISTS THROUGHOUT the United States for more medical personnel to provide health care, especially to children, in both urban and rural communities. Although attempts are being made to alleviate the shortage of physicians by increasing the size and number of medical schools, the demands for health care are increasing more rapidly than the increases in medical personnel. It is unlikely these measures will be sufficient to eliminate the shortage of trained personnel in the foreseeable future.

In July, 1972, a new category of health professional, the child health associate, will become eligible to join physicians in private practice or in public health facilities in providing increased and improved health care to children and adults. The child health associates are unique because of their ability to diagnose and treat most of the common problems encountered in ambulatory pediatrics. Under the supervision of a physician, they can provide direct patient care thereby complementing the physician's activities and enabling the physician to concentrate on the complex and demanding problems which require his special skills.

The Child Health Associate Program and the enabling legislation defining and regulating their practice in the state of Colorado has been endorsed by the Colorado Medical Society, the Colorado Academy of General Practitioners, the Colorado Osteopathic Association, and the Colorado Chapter of the American Academy of Pediatrics.

The Child Health Associate Program is an intensive specialized three-year course of study which follows two or more years of pre-professional college preparation. The first two years are spent at the medical center and students receive theoretical and practical training in the care of children similar to that given in medical school. Throughout the course of study, the curriculum for associates is designed to emphasize the practical application of child care in office settings. Although the first year is primarily in the basic sciences, patient contact begins during the first month and continues to be stressed throughout the program. The second year emphasizes the clinical aspects of ambulatory pediatrics. The third year of training is an internship composed of rotations with physicians (general practitioners and pediatricians) in private practice and in public health facilities. The training during the internship will expose them to similar kinds of responsibilities and experiences in the type of settings

*Assistant Professor of Pediatrics, University of Colorado Medical Center.

in which they will later practice. The total course of study is shorter than that given medical or osteopathy students, but the experience and training of the child health associate in the health care of children is greater than that usually received by medical or other professional students. The child health associate will be able to provide quality care in well child and preventive pediatrics, as well as diagnose and treat the majority of the minor illness of childhood, such as respiratory ailments, childhood communicable diseases, minor gastrointestinal disturbances, allergy problems, mild disorders of the skin, various infections and minor injuries. The child health associate will be certified to write prescriptions for non-narcotic drugs.

In the private sector, the child health associate interns have already demonstrated their ability and competence to assume direct and responsible roles in patient care. The associates have been well accepted by patients and the office staff of physicians. Thus, Dr. Peter Dawson, a pediatrician in Ft. Lupton, Colorado, noted, "I have had two child health associate interns and have been impressed with their competence and ability to manage pediatric problems. Their performance adheres to high standards of care." Dr. William De Alva, family practitioner in Northglenn, Colorado, and past president of the Colorado Academy of Family Practice, found that "the training of the child health associate lends itself to getting right into a family setting. There was rapid patient acceptance. The work of the child health associate in pediatrics freed me to take care of other patient problems, and I think our patients received more and better care." Dr. Arnold Loken, an osteopathic physician in Littleton, Colorado, and past president of the Colorado Osteopathic Association, had a child health associate in his office during the first month of her internship and observed that, "the child health associate intern I precepted impressed me highly with her pediatric knowledge, motivation and interest in people. The child health associate would be a valuable addition to one's practice."

To further develop skills in the care of the newborn infant and in the counselling of the mother, one month of the internship is spent in the newborn nursery at the Medical Center. Dr. Lula Lubchenco, Co-Director of the Newborn and Premature Center, has pointed out that, "the child health associate can function as a key figure in the care of the normal newborn, including much needed parental support and guidance."

Three classes of child health associates are enrolled in the program. The first class, who will graduate in June, 1972, have expressed an interest in practicing in a variety of settings including both rural and urban areas. However, one of their principal concerns has been that physicians in Colorado and neighboring states may not be sufficiently aware of the program and so might not call upon them to join in providing health care to the children in their practices. Child health associates and the faculty at the Medical Center have indicated that they would be pleased to meet and discuss with physicians how the associates could work under their supervision in providing the health care that is needed.

Legal authorization and certification of child health associates is presently only available in Colorado, but these new health workers could be utilized under existing laws in other states to perform a wide variety of functions and activities.

Although the training of child health associates is directed primarily towards developing skills applicable to the care of children, physicians in practice have found that the associates also can make a valuable contribution to the health care of adults. The Medical Practice Act of Colorado permits physicians to delegate to assistants many functions, which the latter are qualified to perform, as long as the physician supervises and retains responsibility for the assistants' activities. The child health associate could, therefore, assist in providing limited care to adults as well as the more comprehensive health care they can give to children. •

ADDENDUM: Additional information about employing child health associates or any other aspects of the program may be obtained by writing to Dr. Louis L. Fine, University of Colorado Medical Center, Department of Pediatrics, Box 2662, 4200 East Ninth Avenue, Denver, Colorado 80220.

Galactorrhea--A clinical approach*

Maire T. Buckman, MD, Albuquerque, New Mexico

Galactorrhea, a more frequently encountered clinical problem, is now being regarded as a clinical manifestation of disturbed prolactin physiology. In this paper the clinical abnormalities associated with galactorrhea are reviewed, and our current understanding of the underlying pathophysiologic processes are discussed. Three illustrative case histories are presented.

GALACTORRHEA IS DEFINED as a milk-like breast secretion in the absence of either pregnancy, the immediate postpartum state, or the physiologic lactation sustained by the suckling action of the infant. This phenomenon has been known since antiquity and indeed, in the Talmud (Sabbath 53B) an incident is described in which a man was miraculously able to nurse his child after his wife's death. The wet nurse of yesteryear and the current encouragement by La Leche League† for foster parents to nurse their adopted infants reflect common knowledge that stimulation of the human breast, mechanical and psychic, can result in lactation. The universal potentiality of lactation makes its non-physiologic counterpart, galactorrhea, a unique clinical entity.

Physiology of lactation

Over the years we have gained some understanding of the physiology of lactation. The pituitary hormone, prolactin, is thought to facilitate both the pubertal mammary duct development stimulated by estrogen and acinar formation stimulated by progresterone. During pregnancy placental lactogen suppresses prolactin release from the anterior pituitary thereby preventing lactation. At the time of parturition this inhibition to prolactin release is removed and lactation ensues. Other hormones such as glucocorticoids, growth hormone, thyroid hormones, insulin and parathyroid hormone play a role in breast development and lactation, but their importance in the various clinical states of galactorrhea remains to be defined.[1,2,3]

Prolactin is secreted by the adenohypophysis. In contrast to most anterior pituitary hormones, prolactin production and release is restrained by tonic hypothalamic inhibition. The median eminence of the hypothalamus secretes a neural hormone called prolactin inhibiting factor (PIF) which inhibits prolactin production and release. When this influence is removed by hypothalamic damage or pituitary stalk section, increased amounts of prolactin are released. Although the chemical structure of prolactin is not yet known, bio- and radio-immunoassays have been developed to measure its activity.[4]

Disorders associated with galactorrhea

In the medical literature attention has been focused on galactorrhea for some 120 years. In 1852 Chiari et al. first described the syndrome of persistent postpartum galactorrhea and amenorrhea associated with utero-ovarian atrophy, but without evidence of pituitary tumor. Thirty years later, Frommel described one patient with the same findings and thus the Chiari-Frommel syndrome came to be. In 1932 del Castillo described a nulliparous, non-gravid female with galactorrhea and amenorrhea without associated evidence of pituitary tumor. This symptom complex is known as the Argonz-del Castillo Syndrome. In 1954 Forbes and co-workers described still another patient with the same symptoms but in association with a pituitary tumor. These three classical syndromes are summarized in Table 1.

*From the Departments of Medicine, Lovelace Clinic and University of New Mexico School of Medicine.

†A national association of nursing mothers.

TABLE 1
SYNDROMES OF GALACTORRHEA AND AMENORRHEA

	Chiari-Frommel	del Castillo	Forbes-Albright
Onset	Postpartum	Spontaneous	Postpartum or spontaneous
Sella turcica	Normal	Normal	Enlarged
Duration	Sometimes transient	Usually permanent	Permanent

In the last forty years the spectrum has widened tremendously. The three major categories associated with galactorrhea — endocrine, local factors and drugs—are outlined in Table 2. This classification is cumbersome, but a more logical categorization based on pathophysiology is not yet possible.

Pathophysiology of galactorrhea

The pathophysiology of galactorrhea has not been well established in all cases. The Argonz-del Castillo and Chiari-Frommel syndromes are felt to represent hypothalamic dysfunction without structural alteration of the hypothalamus. The local factors are operative via stimulation of somantic sensory nerves of the anterior chest wall which carry impulses to the spinal cord and thence to the hypothalamus to shut off PIF and thereby permit prolactin release. Animal experiments have shown that estrogen, in addition to stimulating breast development, is a potent stimulus to prolactin secretion and appears to act directly on the adenohypophysis as well as reducing the PIF content of the hypothalamus. Thyroid hormones similarly are capable of stimulating prolactin secretion directly from the anterior pituitary. Progesterone and androgens appear to stimulate prolactin secretion via the hypothalamus. Of the psychotrophic drugs, Serpasil® and the phenothiazines have been shown to reduce PIF content of the hypothalamus and thereby remove the tonic inhibition to prolactin release.[3]

CASE REPORTS

In the past six months we have seen 10 cases of galactorrhea. Three of these are presented here as illustrative examples of the spectrum of this disease. The pertinent findings are summarized in Table 3.

Case 1. M. T. is a 21-year-old gravida 0, para 0, white female who had menarche at age 10. Six years ago she began lactating spontaneously. Her menses were regular until April 1971 when she developed oligomenorrhea. She has had occipital

TABLE 2
CONDITIONS ASSOCIATED WITH GALACTORRHEA

I. Endocrine
- A. Intracranial disorders (Hypothalamic-pituitary dysfunction)
  1. Hypothalamic and related disorders
     a. Encephalitis
     b. Post encephalitic Parkinsonism
     c. Tumors
     d. Pseudocyesis
     e. Pseudotumor cerebri
     f. Unknown etiology (del Castillo and Chiari-Frommel Syndromes)
  2. Impaired transport of PIF
     a. Stalk section
     b. Tumors of the stalk
  3. Pituitary Disease
     a. ? functional abnormality
     b. Prolactin secreting tumors (Forbes-Albright Syndrome)
     c. Acromegaly
     d. Cushing's Disease
     e. Hypopituitarism
- B. Extracranial Disorders
  1. Neoplasms
     a. Utero-ovarian tumors with or without endocrine function and surgery related to these
     b. Other functioning endocrine tumors —adrenal carcinoma and testicular choriocarcinoma
  2. Other Endocrine Disturbances
     a. Hypothyroidism
     b. Hyperthyroidism
     c. Adrenal insufficiency
     d. Ovarian insufficiency — castration and menopause
     e. Hysterectomy

II. Local Factors
- A. Mechanical stimulation of male or female nonpuerperal breast
- B. Disturbance of chest wall
  1. Thoracic surgery
  2. Burns of the chest
  3. Herpes zoster
  4. Radical mastectomy

III. Drugs
- A. Hormones
  1. Estrogens
  2. Androgens
  3. Progestogens
  4. Combinations of above
- B. Psychotropic Drugs
  1. Rauwolfia alkaloids (i.e. Serapasil®)
  2. Phenothiazines (i.e. Thorazine®)
  3. Alpha-methyldopa
  4. Imipramine
  5. Meprobamate

Modified from Pernoll,[5] Peake,[6] Dowling[7] and Moore[8].

TABLE 3

PERTINENT FINDINGS IN 3 CASES OF GALACTORRHEA

Patient	Age	Gravida	Para	Duration of Galactorrhea	Menses	Apparent Etiology	Prolactin
M.T.	21	0	0	6 years	Regular menses up until April 1971; oligomenorrhea since	pituitary tumor	290 μleq/ml
B.T.	19	0	0	¾ year	Amenorrhea 2½ years	pituitary-hypothalamic dysfunction	142 μleq/ml
K.P.	32	II	II	8 years	Amenorrhea 3 years	birth control pills	8.6 μleq/ml

and frontal headaches for several years but these have increased in frequency and severity over the past several months. She has never taken birth control pills or any other type of drug and denies other endocrine symptoms.

On physical examination abundant milky breast secretions were noted and pelvic examination revealed an infantile uterus. Visual field examination was normal. Skull films revealed a normal sized sella turcica with a double floor. Tomagrams of the sella turcica confirmed the finding of a double floor indicative of an expanding pituitary mass on the right side. Thyroid function studies; 24-hour urine for gonadotrophins; 17-ketosteroids, 17- hydroxycorticosteroids; and a growth hormone determination were normal. Piromen test revealed an intact pituitary-adrenal axis. Serum prolactin was measured at 290 μleq/ml, a grossly elevated value. (N=<10 μleq/ml)

Comment: In this case a small pituitary tumor is secreting very high levels of prolactin. This case exemplifies the Forbes-Albright syndrome.

Case 2. B.T. is an 18-year-old gravida 0, para 0, Spanish-American female who had menarche at age 11, followed by normal menses every 28 to 30 days. Three years ago she became oligomenorrheic and approximately six months later her menses ceased altogether. Birth control pills sequentially for five months resulted in withdrawal bleeding. When these were stopped, however, she failed to menstruate spontaneously. A subsequent trial of Clomid failed to produce ovulation. Nine months ago she developed galactorrhea and this has persisted to the present time. She denies drug ingestion or symptoms of other endocrine disease.

Physical examination was unremarkable except for milky breast discharge and a relatively small uterus. No signs of virilization were present. Visual field examination and skull x-rays were normal. Thyroid function studies were normal as were 24-hour urinary gonadotrophins and 17-hydroxycorticosteroids. 24-hour urine 17-ketosteroid excretion was slightly elevated at 16 milligrams per day but suppressed normally on 2 mg Dexamethasone per day. Piromen test revealed an intact pituitary-adrenal axis and a growth hormone determination was normal. Serum prolactin level was 142 μleq/ml which is significantly elevated.

Comment: This case exemplifies galactorrhea-amenorrhea of unknown etiology in which functional hypothalamic dysfunction is confirmed by the grossly elevated level of prolactin. In this case, this is not associated with pregnancy and is, therefore, known as the del Castillo syndrome.

Case 3. K.P. is a thirty-two-year-old female who had normal menarche at age 13 with regular menses every 28 to 32 days. Eight years ago, at age 24, she was started on birth control pills (Enovid 5 mg q.d.) for contraception. Four months later she noted the onset of galactorrhea occurring only on days three to five of her menstrual cycle. A year later birth control pills were discontinued and shortly thereafter she began lactating continuously. Subsequently she also developed oligomenorrhea with basal body temperature chart showing only sporadic ovulation. Three and one-half years ago the patient spontaneously conceived and delivered a normal term infant. She continued lactating throughout her pregnancy. She nursed the baby successfully for four months, and continued lactating thereafter without resuming menstrual periods. Two years ago following Clomid therapy, she conceived again, and again delivered a normal term infant. She again continued to lactate throughout her pregnancy and though she did not attempt to nurse, has continued to lactate and has remained amenorrheic to the present time. She denied other drug ingestion at any time and symptoms of other endocrine disease.

Physical examination was entirely within normal limits except for milk-like breast secretions. Visual field examination and skull x-rays were normal. Urinary gonadotrophins, 17-ketosteroids and 17-hydroxycorticosteroids were normal; thyroid function studies and growth hormone level were also normal. Piromen test revealed an intact pituitary-adrenal axis. Serum prolactin was measured at 8.6 μleq/ml which is in the normal range.

Comment: The normal serum prolactin level in this case excludes a prolactin secreting pituitary tumor or hypothalamic-pituitary dysfunction. This case, therefore, illustrates a form of galactorrhea which may not be a direct manifestation of abnormal prolactin physiology but rather, may be related to the direct stimulatory effect of estrogen and progesterone on breast development.

Discussion

Several points in regard to our clinical understanding and evaluation of galactorrhea need to be emphasized.

Because of the association of galactorrhea with other endocrinopathies, local factors, and drugs as outlined in Table 2, a thorough evaluation of every patient must be undertaken. In addition to a thorough history and physical examination, a history of drug ingestion must be obtained, visual field examination and skull x-rays examined to rule out hypothalamic or pituitary tumor, and a search for other endocrinopathies performed. Assessment of adrenal-pituitary, gonadal-pituitary, and thyroidal-pituitary axis is helpful and evaluation of growth hormone secretion must be made. Because galactorrhea may be the first symptom of a life-threatening process such as a pituitary or hypothalamic tumor, periodic re-examination is essential. One author reports the case of a woman who developed persistent postpartum lactation and ultimately, thirteen years after onset of galactorrhea, turned out to have a pituitary tumor.[9] Because pituitary tumors may be very slow growing, periodic follow-up of patients with galactorrhea is imperative.

Prolactin plays a central part in the pathophysiology of galactorrhea. With newer, more sensitive bio- and radio-immunoassays this role will be more clearly defined. As case 3 illustrates, however, other hormonal influences such as the very high levels of estrogen and progesterone found in some birth control pills may stimulate lactation without apparent aberration of prolactin physiology. Birth control pills have been associated with galactorrhea in 29 reported cases over the last eight years.

Amenorrhea is a frequent finding in patients with galactorrhea as illustrated by cases 2 and 3. It has been suggested that since there is some evidence that luteinizing hormone-releasing factor is synthesized and secreted from the same portion of the hypothalamus as PIF, that amenorrhea is secondary to deficient hypothalamic follicle-stimulating hormone-releasing factor and luteinizing hormone-releasing factor.[4] This remains to be established. Urinary gonadotrophin determinations are known to be inaccurate and normal values in our three cases do not exclude FSH-LH deficiency. This aspect of the galactorrhea-amenorrhea syndromes needs to be further evaluated.

Summary

Galactorrhea and the associated clinical conditions are reviewed. Three case histories are presented; Case 1 associated with a pituitary tumor, Case 2 with hypothalamic-pituitary dysfunction and Case 3 with birth control pills. Prolactin activity, as measured by radio-immunoassay, varies greatly in these three patients and is clearly of diagnostic as well as prognostic significance. •

ACKNOWLEDGMENTS

I appreciate the prolactin determinations performed in Dr. William H. Daughaday's lab, Washington University School of Medicine, St. Louis, Missouri, and the encouragement of Dr. Neil Kaminsky and Dr. Martin Conway of Lovelace Clinic, and Dr. Glenn Peake of the University of New Mexico School of Medicine.

REFERENCES

1 Peake, G. T.: Human prolactin: fact or fancy. IN Twenty second Annual Postgraduate Assembly of the Endocrine Society: Syllabus, p. 23, 1970.
2 Relkin, R.: Galactorrhea. N. Y. State J. Med., 65:2800-2807, November 15, 1965.
3 Meites, J., and Nicoll, C. S.: Adenohypophysis: prolactin. Ann. Rev. Physiol., 28:57-88, 1966.
4 Sherwood, L. M.: Human prolactin. New Engl. J. Med., 284:774-77, April 8, 1971.
5 Pernoll, M. L.: Diagnosis and treatment of galactorrhea. Postgrad. Med., 49:76-82, 1971.
6 Peake, G. T., and Daughaday, W. H.: Disturbances of pituitary function in central nervous system disease. Med. Clin. North Am., 52:357-369, 1968.
7 Dowling, J. T., et al.: Nonpuerperal galactorrhea. Arch. Intern. Med., 107:885-893, 1961.
8 Moore, W. T.: Inappropriate lactation. Med. Ann. Dist. Columbia, 37:649-652, 1968.
9 Young, R. L., et al.: Spectrum of nonpuerperal galactorrhea: report of two cases evolving through the various syndromes. J. Clin. Endocrinol. Metab., 27:461-466, 1967.

Occupational medical services for small employee units*

M. B. Bond, MD, Denver

Small employee units include both businesses with few employees and larger organizations with scattered operations involving one or more employees. The method and scope of services may be similar in the two types of employee groups. The essential item is a local practicing physician with a willingness to provide occupational health services to an employee.

MOST PERSONS EMPLOYED in the United States work in small groups; that is, the employing organization has only a small number of workers, or the employees are widely dispersed in small units. In both instances, provision of occupational medical services has often been difficult, uncertain, unreliable and lacking in quality. There are reasons for these deficiencies, and these reasons reflect poorly on the medical profession, business managers and sometimes unions. It is definitely possible to have good occupational medical services for an employee group of any size, but for small units more effort and dedication is required on the part of all three groups involved.

What Services Should Be Provided?

The American Medical Association's Council on Occupational Health[1] has provided detailed advice on the kinds of medical services that appear to be appropriate for employers, employees, doctors and the community. These services are generally called occupational health programs and deal with the health of employees as related to their work. Generally care for illnesses and injuries developing away from or unrelated etiologically to work is not included in an occupational health program. Complete medical care is provided for job related illnesses and injuries for which there is a legal requirement under Workmen's Compensation or other laws to provide treatment. Except for care of job related conditions, the orientation and activities of the health program are preventive medicine—examinations and evaluations of employees at various times during their careers, advice and counseling to employees, follow-up examinations of employees with chronic disease, health education activities, and immunizations and screening tests under certain conditions. Treatment and assistance is provided to employees for emergencies at work, whether work related or not.

The number of employees at one location and the nature of work performed should be the primary determinants as to whether a health facility can be maintained at the worksite. For employee groups numbering less than 200-300 it is rarely practical to attempt a medical department. An exception might be found where the work involves much close contact with potentially hazardous materials such as ionizing radiation or highly toxic chemicals, such as mercury, beryllium, insecticides and others. Worksites dealing with materials of this sort are often located in areas somewhat remote from population centers as a precaution against harm to the community. This location makes it expensive and time consuming to send employees to a physician's office. In most instances where toxic materials are handled, frequent health checks are made on employees to evaluate possible harm from work exposures. Thus more health services per

*Presented at the 31st Annual Congress on Occupational Health, American Medical Association, Jackson Lake Lodge, Grand Teton National Park, Wyoming, August 29, 1971. The author is also a Doctor of Industrial Medicine (IMD). From the Medical Department, Mountain Bell, and the Department of Preventive Medicine, University of Colorado Medical Center, Denver.

employee may justify an in-plant medical department for a smaller group than if there are no unusual hazards associated with the work.

Out-of-Plant Services

There are many, many business establishments where only 1-50 employees work. Restaurants, motels, retail shops of all kinds, automobile service stations and garages, sales offices and a great variety of other enterprises are common examples. Proprietors of small businesses have the same responsibilities as other employers for providing a safe work place and for medical care of those injured or made ill by their work. The new Federal Occupational Safety and Health Act applies to "all businesses affecting interstate commerce" except Federal and state governments. This definition will include nearly all employers and will undoubtedly stimulate many proprietors of small businesses to want occupational health services.

Small Units of Large Organizations: If small employee groups are part of a large company with headquarters elsewhere, advice and instructions can be supplied from the corporate offices where staffs of specialists exist. Lawyers, physicians, nurses, industrial hygienists, safety experts and labor relations representatives can combine their knowledge and provide specific instructions to supervisors and local physicians in any location covering any type work operation. Such instructions should, of course, be consistent with general company policies, insurance and benefit provisions, labor contracts and the laws of the particular state.

Selection of a Physician is obviously a key first step because a local physician, licensed in the state, is required for examinations, treatment or any other professional activities. It is best if local management and company medical director share the responsibility for obtaining a doctor's services. Usually local managers are acquainted with several physicians in the community through social, business and civic activities and they can recommend one or more physicians to the medical director. The medical director can check the physician's credentials by consulting the American Medical Directory, published biennially by the American Medical Association. It is common that the medical director will be personally acquainted with one or more doctors in the particular community or may know officials in the state or local medical society who can provide information about available physicians. When a physician has been agreed upon by the medical director and local management, the physician should be contacted to see if he is interested in doing the work. If so, then the medical director should visit him personally, if possible, or write a letter and include the company Physician's Manual or other written policies, standards for applicants, description of jobs including possible hazards and the necessary periodic tests or examinations for employees.

The local manager should arrange for the physician to visit the plant or place of work so the doctor can actually see the working conditions and become acquainted with at least some of the supervisors. The frequency of visits after the first visit should be determined by the nature of the work and major changes in materials or processes. If significant hazards exist in the work environment, the physician should tour the work area every one or two months.

Remuneration of the Physician may be on a fee-for-service basis including hourly charges for visits to the workplace. If the services provided are frequent, then a retainer or salary may be desirable for both parties—it increases the physician's attention to the employer's business and provides him with certain fringe benefits associated with employment such as health and life insurance, pensions, Social Security and others.

The practicing physician who agrees to provide service to a company or other organization should honor his commitment. A small amount of effort initially will save much time and confusion of all concerned, and will particularly save the doctor's time. A visit to the worksite should be made for an observation of the working environment and a frank discussion of what the employer thinks his employee health problems are. The wise physician will do more listening than talking, and recognize each employee group is unique in terms of employee policy and details of

getting the job done. Employers are most often delighted to conduct the physician through the worksite and share any information about the business. This will permit spotting the occasional employer who would misuse the physician by asking him to "cover up" or deny injuries or illnesses from work exposure, or who would not reveal to the physician the actual contents of certain materials used at work under the guise of protecting trade secrets. There can be no secrets from the physician if he is to perform his function properly. Employers who would misuse physicians should be advised there can be no compromise with honesty in dealing with the health of people.

After the physician has become familiar with the work environment and company policies, he should advise the employer how and when to send employees to his office for nonemergency conditions such as applicant examinations, return-to-work checkups, periodic tests or examinations such as blood counts, chest x-rays, etc. Instructions for these and for emergencies should be written and provided to the employer so the latter may post them on bulletin boards, distribute them to supervisors, place them in first aid kits and in company trucks, etc. The company medical director can assist with these instructions. Emergency instruction should also include where to send patients at different times during the day and on special days such as weekends and days off—name, address and phone number of hospital emergency room plus name of associate or colleague that should be contacted if the physician is not available.

The physician must then instruct his own nurses and assistants in his office as to what commitments have been made to the employer and provide them with company forms or instructions. Reference books or articles pertaining to the hazards in the particular working environment should be obtained. The company medical director may furnish these or can advise on them.

The local physician will have the advantage of working with another physician—the medical director—on problem cases. This can be reassuring when an unusual illness or reaction occurs that could possibly be related to work exposure. The medical director should be familiar with products, materials and processes in the company and be able to provide guidance even if at long distance.

Small Independent Employee Groups: Companies or organizations that are complete and independent have the same problems and should be handled similar to small units of large organizations as just described. More responsibility is placed on the local management and local physician because there are no staffs of experts far away at headquarters to establish policy and practices. However, there is an advantage in the small independent business in that greater flexibility is usually present.

Responsibilities of the employer include knowing when and how to obtain medical services for his employees. There are several sources of information available to him such as the American Medical Association's Council on Occupational Health, which has many pamphlets on specific areas of health services.[1,2] Also on a national scale, the American Management Association and other trade associations present courses on occupational health programs each year for businessmen. The Industrial Medical Association and its educational affiliate, the Occupational Health Institute, have reprints and pamphlets available and a monograph has been prepared on occupational health programs by Felton.[3] Nearly all state and many local medical societies have committees on occupational health who can provide information on this subject to both physicians and managers, as well as direct managers to physicians interested in this work. The owner or president of a business should have interest and concern in occupational health services for his employees. He should participate in selection of a physician and determination of the scope of services for his company. A manager reporting directly to the president should have responsibility for personnel matters, insurance programs, safety programs and health services. Obviously, the responsibility for health services must be a joint one with the physician who is responsible for all of his own activities.

Responsibilities of the physician are those already described plus the necessity of developing rules and practices for his services to the employer. Many of the references already cited[1,2,3,4] provide adequate general information for the physician to use in establishing his relationships with an employer. Where there are specific hazards in the work place, it is wise to consult with a colleague who specializes in Occupational Medicine for advice about the particular problem. Workers exposed to heavy metals, silica, coal mine dust, ionizing radiation, asbestos, excessive noise, chemicals with systemic toxicity and other comparable hazards require periodic examinations for evidence of harm. Written instructions about such periodic examinations should be provided to the company including the frequency and type of examination required for various jobs. Other instructions should be furnished as described in the preceding section.

A physician performing services for an employer should be familiar with the State Workmen's Compensation Act and Occupational Disease Law. He should also know the resources of the state and local health departments in order to learn promptly information on epidemics, other disease prevalence, advice or assistance in investigating outbreaks of food poisoning, local pollution levels and standards, etc.

In-Plant Services

Employee groups of about 200-300 or more will usually justify a medical facility at the worksite. A Registered Nurse should be employed to staff such a facility; additional nurses and/or clerks will be needed in large plants, depending on the nature of the work. The amount of physician time in the medical department also varies with the nature of work performed and labor turnover from one or two hours per week to daily visits. The physician must be prepared for emergency cases when he is not at the plant. Signed instructions for the nurse will enable her to handle many problems that occur in the physician's absence, and he should be available to give advice by telephone. It is highly desirable that the nurse have training or experience in occupational health nursing. Membership in the American Association of Industrial Nurses is desirable to permit the nurse to keep abreast of advances and innovations in her profession.

There are excellent articles describing various aspects of the small plant medical department including its staffing and operation.[5] Other articles have explained the role of the nurse,[6,7] and still others have dealt with the role of the industrial physician and the family physician.[8,9] No attempt will be made to review these articles which should be read for complete information. The title of an article by Howe is "Small Industry: An Opportunity for the Family Physician."[9] The use of the word opportunity points out that physicians in practice can expand their knowledge and their services to the community by getting out of their offices occasionally to see health matters in a more positive way—at the workplace.

Comment

The physician who undertakes to provide his services to an employer must recognize that changes have occurred in the work setting as in all other aspects of American life. No longer may an employer have certain jobs for men only and others for women only. Discrimination is also forbidden because of race and age. For example, physicians will be required to determine if a particular female is able to do a particular job that has always been a man's work. Also, it is no longer possible to have a rule that men over age 40—or some other age—may not do certain types of work. Each individual must be examined and a judgment given on the basis of findings in that individual. There are no scientifically established guidelines in many of these areas. Because of new and increasingly active Federal agencies with rules against discrimination and more active promotion of individual rights by many organizations and individuals, doctors can expect more challenges of their advice to employers about when and under what conditions a person may work.

The Federal Occupational Safety and Health Act (OSHA) became effective April 28, 1971, and states that all employers shall provide a safe working place for all employees, the "General Duty" rule. Standards for the permissible amounts of potentially harmful substances and conditions at work

have been and will be established. Any employee may directly or through a representative report what he thinks is a dangerous condition in the work environment to the Federal or state enforcing authorities. The latter will investigate and report their findings to both the employer and employee. The employer may not penalize an employee who makes such complaints. Physicians will be called upon increasingly to judge not only whether a particular condition at the worksite is potentially harmful but also whether harm has occurred to an individual from such exposure. Many times this will be difficult, but it is the kind of responsibility physicians must accept.

The activities that have been called safety have generally been easily distinguished from what is called health matters in industry. Safety has always meant such things as avoiding injuries by training in proper physical methods of accomplishing a task, the use of protective equipment including tools, safety shoes, safety glasses, etc., the compiling of statistics about injuries, providing first aid training, and similar things. Many and probably most persons working in safety programs now are not scientifically trained in that field. Only recently have formal undergraduate programs been developed in safety as a scientific discipline leading to a degree.

Health programs in industry have been what the licensed health professionals—doctors and nurses—do. Under the new Federal laws, including the Coal Mine Health and Safety Act, safety and health activities merge particularly in areas that are called industrial hygiene and toxicology. There is a dearth of individuals trained to carry out all the things included in "safety" in the new laws. Here is an opportunity and a responsibility for physicians to help by giving guidance and assistance to employers who must plan for a "safe" working environment. Small businesses in particular will be hard pressed to find enough persons trained in control of the working environment. Certainly physicians cannot assume this role but can be helpful by advising when an expert in industrial hygiene is needed, and by being familiar with the resources, both public and private, in this area.

PROFESSIONAL SERVICES CONSULTANTS, INC.

A multi-faceted company providing physicians with competent management

- **ACCOUNTING SERVICES**
- **BOOKING AND BILLING SERVICES (ANESTHESIOLOGISTS)**
- **COMPUTER BILLING (VERY ECONOMICAL)**
- **EMPLOYMENT SERVICES**
- **PRACTICE CONSULTING**
- **TAX PREPARATION AND PLANNING**
- **TRANSCRIPTION SERVICES**

PROFESSIONAL SERVICES . . . when only the **best** is good enough.

Offices in the Franklin Medical Center
2045 Franklin Street
Denver, Colorado 80205
893-5333

The Occupational Safety and Health Act requires employers to make and maintain more detailed records than has been the practice of most employers. For example, if there are "potentially toxic substances or harmful physical agents" in the work environment, periodic measurement of the actual concentrations of these substances to which workers are exposed must be made and the records maintained so as to be available to Federal inspectors, who also may make their own measurements. Results of such tests made by an employer or inspectors must be made available to any employee working in that environment—a worker is thus entitled to know his own exposures. It is likely physicians will be asked by their patients and by employers about the significance of certain exposures they have had; physicians should be prepared to answer such questions or at least know where to find the answers.

Under the Occupational Health and Safety Act records of injuries and illnesses due to work must be kept in more detail than is now common. For example, injuries or illnesses due to work must be recorded if there is loss of work time, medical treatment (not first aid), loss of consciousness, limited work (light duty) or transfer to another job due to the injury or illness. This is the employer's responsibility and should not be a problem since in most instances of this sort the same information is required for reporting to the state under Workmen's Compensation or occupational disease laws.

It is a real asset for an employer to have a physician available to care for employees who are hurt at work, and to provide certain other services such as applicant examinations, health evaluation examinations, and advice on the many areas where an employer now has responsibilities for the health of his workers. This can be an interesting and profitable experience for the doctor. Physicians who do part-time occupational medicine should be honest, ethical and interested in the health of the employee in relation to his work. The primary benefit is to the employee who will feel reassured when he gets good quality health services promptly and pleasantly when it is the responsibility and advantage of employer to provide it. •

REFERENCES

[1] Council on Occupational Health, American Medical Association: Scope, Objectives and Functions of Occupational Health Programs, JAMA 174:533-536, 1960.
[2] Council on Occupational Health, American Medical Association: A Management Guide for Occupational Health Problems, Arch. Environ. Health. 9:408-413, 1964.
[3] Council on Occupational Health, American Medical Association: Publications List, Chicago, 1970.
[4] Felton, J. S.: Organization and operation of an occupational health program. J. Occ. Med. 6:25-68, 1964.
[5] Council on Occupational Health, American Medical Association: Guide to Small Plant Occupational Health Programs, Arch. Environ. Health 5:113-122, 1962.
[6] Council on Occupational Health, American Medical Association: Medical Directives for Occupational Health Nurses. Arch. Environ. Health 5:631-637, 1962.
[7] Wagner, Sara P.: Role of occupational nurse in efficient worker. Arch. Environ. Health 4:451-453, 1962.
[8] Howe, H. F.: Relationship between plant physician and family physician. JAMA 179:975-978, 1962.
[9] Howe, H. F.: Small industry: an opportunity for the family physician. G.P. 26:166-173, 1962.

The girth control pill

Tepanil® Ten-tab®

(continuous release form)

(diethylpropion hydrochloride, N.F.)

When girth gets out of control, TEPANIL can provide sound support for the weight control program you recommend. TEPANIL reduces the appetite—patients enjoy food but eat less. Weight loss is significant—gradual—yet there is a relatively low incidence of CNS stimulation.

Contraindications: Concurrently with MAO inhibitors, in patients hypersensitive to this drug; in emotionally unstable patients susceptible to drug abuse.

Warning: Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

Adverse Reactions: Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence. As is characteristic of sympathomimetic agents, it may occasionally cause *CNS effects* such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported. *Sympathomimetic cardiovascular effects* reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others. *Allergic* phenomena reported include such conditions as rash, urticaria, ecchymosis, and erythema. *Gastrointestinal effects* such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosage forms: TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL: One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

Merrell

MERRELL-NATIONAL LABORATORIES
Division of Richardson-Merrell Inc.
Cincinnati, Ohio 45215

Painful night leg cramps...

unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

One thing patients can sleep without, particularly patients with chronic disease conditions such as arthritis, diabetes or PVD, is painful night leg cramps. Although seldom the presenting complaint, night leg cramps can tie your patients up in painful knots. Now, just one tablet of QUINAMM at bedtime can usually bring an end to shattered sleep and needless suffering. Your patients will sleep restfully—gratefully—with QUINAMM, specific therapy to prevent painful night leg cramps.

Prescribing Information — Composition: Each white, beveled, compressed tablet contoins: Quinine sulfate, 260 mg., Aminophylline, 195 mg. **Indications:** For the prevention and treatment af nocturnol ond recumbency leg muscle cromps, including those associated wlth arthritis, diabetes, varicose veins, thrambaphlebitis, arteriosclerosis ond static foot deformities. **Contraindications:** QUINAMM is controindicated in pregnancy becouse of its quinine content. **Precautions/Adverse Reactions:** Aminophylline moy produce intestinol cromps in some instances, and quinine may produce symptoms of cinchonism, such as tinnitus, dizziness, and gastrointestinal disturbance. Discontinue use if ringing in the ears, deafness, skin rosh, or visuol disturbances occur. **Dosage:** One tablet upon retiring. Where necessory, dosage may be increosed to one tablet following the evening meol ond one tablet upon retiring. **Supplied:** Bottles of 100 and 500 tablets.

Merrell

MERRELL-NATIONAL LABORATORIES
Division af Richardsan-Merrell Inc.
Cincinnati, Ohia 45215

1-3326 (2877)

Quinamm™
(quinine sulfate 260 mg., aminophylline 195 mg.)

Specific therapy for night leg cramps

Diseases among the Navajo Indians*

Albert L. Muggia, MD, Albuquerque, New Mexico

Little is known about diseases among the Navajo Indians and few studies have been published, yet there are many differences from diseases in the rest of the United States. This paper is a review of the literature on some of the most striking aspects of Navajo diseases, adding personal experience and observations.

THE NAVAJO INDIANS are a closely knit group with a similar pattern of living, and they are almost all direct descendants from the estimated 7,000 Indians who survived "The Long March" and four years of imprisonment at Fort Sumner one hundred years ago.[1] The differences in disease prevalence can help us to think along new lines about the etiology of many disorders, may suggest new ideas for therapy, and help us understand the disease better.

There are 128,000 Navajos living in an area of 25,000 square miles comprising the four state area of New Mexico, Colorado, Utah and Arizona. Except for the few who work in the cities, they lead a rural life herding sheep, working with silver, weaving rugs, or painting.

Many problems are encountered in providing the Indians with good medical care, the most formidable one being transportation. The Public Health Service has excellent facilities with doctors and hospitals, but the Indian must get to the hospital before he can obtain this care. The roads are impassable whenever it rains or whenever the snow melts, and many Indians do not have cars; to have to pay someone else for a ride can present quite a problem. A lesser problem is that almost all the physicians who care for these Indians are fulfilling their draft requirement (United States Public Health Service) and do not stay in the area long enough to get to know and understand the Indians and their difficulties. In addition, the language and cultural barrier often leads to inadequate histories, explanations, and physician empathy.

The Indian believes that disease is caused mostly by "disharmony with the environment."[2] They often will not accept the physician's explanation of diseases because they do not understand them. To the Navajo patient diseases do not come from viruses or bacteria but from a multiplicity of other causes:

1. Infections from enemies or from animals. This can be acquired by hunting the animal, eating it, mishandling it, or seeing it; bears, especially, are animals that can cause illness.
2. Evil spirits of those who have died.
3. Natural phenomena, such as wind or lightning.
4. Witchcraft.
5. From improper behavior or neglect at ceremonials.[2] Navajo medicine men try to detect the cause of diseases by hand trembling, star gazing, or staring in a ritual fashion.[2] When a family is told that a patient has been "witched," they know that nothing can be done and that the end is inevitable. They are not afraid of death, and theirs is one of the few religions that does not include expectations of a life after death. Many patients come to the Anglo doctor only for symptomatic relief until they can afford to undergo the proper ceremonial which restores body harmony.

The Navajos have specific medicines for specific symptoms, but these are not necessarily taken by mouth. It may be enough to rub them on the stomach or put them in the

*The author is Assistant Professor of Medicine, University of New Mexico, Department of Medicine, Albuquerque, New Mexico 87106. This paper is the sole opinion of the author and does not necessarily express the views of the Public Health Service.

room.[2] Few toxic chemicals are used. The only medical problem has been encountered with medicine men of the Native American Church who use peyote[3] and some times also other drugs. We have seen acute liver toxicity, hepatorenal syndrome, or acute enteritides following medications administered by the medicine man. The nature of the chemical used could not be determined.

The ceremonies or sings are of many types. They all guarantee cure. Because of this at least one-fourth of our patients will interrupt hospitalization for a sing and one-third will admit to a sing before admission.[2]

The Indian in general appears to us as very stoic and non-complaining. It is difficult to determine what sort of things bother him and what things do not. It is clear that he does not like to be rushed into a decision at any time. The Navajos are extremely patient. They will wait for hours without demonstrating any restlessness or irritability. He is not prone to say thank you or please. Patients often will not look directly at the examiner during history taking, and this may often be improperly interpreted as indifference and hostility. Patients will not let the physician know if they are unhappy; they will merely leave.

Non-Indians will often blame their illnesses, ailments and malaise on something they ate; the Navajo will almost always blame it on pushing a car, being kicked by a horse, or falling off a horse.

In general, the medicine man has a good idea of who is sick and who is not. Patients are referred to "the white doctor" saying that the medicine man told them they had a "blood clot in their head," and they indeed have a subdural hematoma. Sometimes the medicine man may refer a patient saying that he removed one gallstone but could not remove the other two. The medicine man will also send to the "Anglo" doctor extremely neurotic women that he has been unable to help. On the other hand, he may tell a man with incurable cancer that he need not come for conventional medical care because we can do nothing for him. He may also tell a patient with a coin lesion in his lung not to come back into the hospital because as a medicine man he knows that it is a tuberculoma whereas the doctor will worry about cancer.

Anxiety over procedures or illness seems to be absent among the Navajos. They are very fatalistic in their approach to things. Endoscopy in Navajos is extremely easy and sedation or local anesthesia is not required.

Suicides are supposedly common among Navajos. In general, among American Indians the suicide rate is 1.6 times that of non-Indians. In 1967 there were 17 Indian suicides per 100,000 population compared to 10.8 per 100,000 population in non-Indians. Among the Indians, 83 per cent of the suicides occurred in males, whereas in the rest of the United States 74 per cent of suicides were male. The most interesting aspect of Indian suicides is that a striking peak occurs between the ages of 15 and 20, whereas in the United States as a whole there is a gradually increasing curve with most of the suicides being in the older age group. Possibly the young Indian is caught in a cross cultural conflict, whereas the older Indian has made peace with it. Many factors contribute to the high suicide rate including alcohol, poverty, dropping out of school, and trouble with the law.[4]

Appearance. Like most other Athabascan tribes the Navajos practically never become bald. They have no hair on their chest or on the sides of the face. Characteristically, a Navajo never shaves. This undoubtedly is a genetic characteristic.

Congenital Malformations do occur among Navajos. No figures are available for Navajos only, but including other tribes the total malformation frequency was found to be 1.86 per cent of all births versus 1.58 per cent in Caucasians and 2.44 per cent in Negroes.[5]

Congenital hip dysplasia, club foot and polydactyly are commonly seen.[5] The prevalence of Albinism is that of 1 in 3,750.[6] Harelip and cleft palate are twice as common in Navajos as in the Caucasian population with an incidence of 1 in 400. Cleft uvulas are 10 times as common in the Navajos as in the Caucasian population and are found in 11 per cent of Navajo Indians.[7]

Blood Types. Eighty-three per cent of Navajos are Type O, and the remainder are Type A. In the United States there is a 45 per

cent incidence of Type O. Almost all Navajos are Rh positive, with only a six per thousand incidence of Rh negative blood against 15 per cent in the United States.[8] No hemoglobinopathies have been noted. Albumin Naskapi has been reported in 0.063 of Navajos.[9] Methemoglobinemia is strikingly common, with many families having this characteristic. Several families have been found with methemoglobinemia in all members suggesting unusual penetrance or homozygosity of this usually recessive gene. In the few cases studied a deficiency of DPNH diaphorase in the red cell was found, and all the cases had no symptoms and were in good health.[10] Hemophilia has been seen in many of the Public Health Service Hospitals.

Blood or kidney donations are difficult to obtain. The argument that the donation is essential to save a life always gets a refusal, not because the Navajo is insensitive, but because they believe that if they give their blood to a man who dies they will also die. This is an idea that must be slowly overcome if we expect the number of blood donations to increase. Many Indians also do not like to receive blood because of fear of evil spirits.

Infant Mortality in the Navajo area has been much higher than that of the rest of the United States. The infant death rate in 1962 was 59.4 per 1,000 live births versus 25.3 in the non-Indian population.[11] However, by 1968 the Indian mortality was down to 30.6 per 1,000 live births. Part of this high infant mortality is related to infections and gastroenteritides, but parental alcoholism also plays a role. In addition, the high infant mortality may be related to the fact that Navajo women have little prenatal care. Forty-seven per cent have no prenatal care at all, 23 per cent are seen in the third trimester for the first time, and only 13 per cent are seen in the first trimester.[12] Pregnancy is considered the natural course for all women, and not an illness.

Alcoholism has been for many years the largest problem facing the reservation and probably the highest single cause of mortality.[13] Alcohol related automobile and horse accidents are common. Accidents account for 16 per cent of all deaths compared to five per cent in the United States as a whole.[14] The high prevalence of alcoholism is in part due to the high rate of unemployment, but many other factors play a role.

The treatment of alcoholism with Antabuse yields better results among Indians than it does in non-Indian populations. Many of them feel that this drug has magic powers and they also strongly insist on having a "wine test" while they are on Antabuse. Possibly, this is considered punishment they have to go through before their alcoholism can be cured. Certainly the one single measure that seems to have helped more than others is finding a job for the patient.

Gastrointestinal Diseases

Gallbladder Disease. "The Navajo burden"[15] is biliary disease. There are many studies to show that gallbladder disease is frequent and very virulent. This is true in all the Indian tribes even though their diets are very different.[15,16,17] Gallstone ileus, fistula, abscesses and biliary tree cancer are common in the Navajo, so that the presence of a gallstone is an indication for surgery in this group. We have seen gallstones in a 10-year-old girl, and carcinoma of the gallbladder in an 11-year-old patient.

The cause for this high incidence is unclear. A recent study demonstrated supersaturated bile in the hepatic duct postulating that some derangement of liver metabolism may exist in these patients.[18] At the Gallup Indian Medical Center (GIMC), an active 200 bed hospital with 940 operations per year, biliary surgery represents 26.3 per cent of all major operations. The patients ranged in age from 17 to 104. About 80 per cent of the gallstone and the common duct stone patients were females.[16,17]

Navajo women will present with gallstones 15 years earlier than their non-Indian counterpart; this difference is not found in males. Biliary fistulas are seen more often, common duct stones will occur earlier, and carcinoma, although it occurs at the same time as in non-Indians or even later, has a definitely higher incidence and occurs in women four times more often than in males[16,17,19,20] (Table 1). Cholelithiasis is found in 24.4 per cent of all autopsies as against only 9.1 per cent of United States autopsies.[14]

TABLE 1[16,17,19,20,21]

Age and Complications of Biliary Tract Disorders

	Gallstones	Carcinoma
	Navajo	Navajo
Average Age at Diagnosis: Male	56-65	67
Female	30-40	63

Common Duct Stones

	Navajo	Non-Indians
Average Age at Diagnosis:	46	57.8

Complications Encountered in Cholecystectomies

	Navajo	Non-Indians
Biliary Fistula for Benign Disease	5 %	0.2%
Common Duct Stones	18.5%	10.4%
Carcinoma	3-5 %	0.5%

Duodenal Ulcers are seldom seen among the Navajos as well as among the other Southwestern tribes. During a six year period of observation no duodenal ulcers were observed in the Many Farms area.[22] We saw one case over a two year period in Gallup, covering 10,000 hospital admissions.

Gastric ulcers, on the other hand, are common and are often associated with a superficial gastritis. Many of these patients with gastric ulcers had a high Basal and Maximal Acid Output in our experience. It almost seems that the Navajo with increased gastric secretion will get a gastric ulcer and not a duodenal ulcer.

The only study of gastric secretion in Indians that has been published reported that 21.8 per cent of Athabascan males had achlorhydria, compared with 14.6 per cent of Caucasians and 17.1 per cent of Negroes. In women the incidence of achlorhydria was slightly higher, 22.5 per cent.[23]

Upper Gastrointestinal Bleeding. Because of the absence of duodenal ulcers, the major causes of bleeding are esophageal varices, gastric ulcer and gastritis (Table 2), and therefore a trial of milk and antacids is not warranted. History rarely helps in pinpointing the source of bleeding and the physical examination is often not helpful because palmar erythema and spider angiomata are rarely observed. X-ray studies produced a diagnosis in only 10 per cent of these patients. BSP excretion and direct endoscopy have proved to be the most helpful procedures. If endoscopy is not available, a therapeutic trial with pituitrin or with the Blakemore tube should be considered since esophageal varices are a more likely diagnosis than duodenal ulcer.

Pancreatitis. Despite the high incidence of alcoholism and cholelithiasis, pancreatitis is extremely rare in all the hospitals that treat Navajos. In an active 200 bed hospital (GIMC) with 5,000 admissions yearly, we saw only two cases of pancreatitis in one year. This is amazing considering that three to five patients with cholecystitis were seen every day and considering the large amount of heavy alcoholism treated. Could it be that they have separate channels for pancreatic and biliary secretions more often than non-Indians? This needs to be studied. Most Indians are binge drinkers and perhaps prolonged daily alcohol ingestion is necessary to produce pancreatitis. However, at surgery for gallbladder disease, pancreatitis is also rarely noted.

Ulcerative Colitis and Regional Enteritis were encountered at GIMC (Table 3). However, salmonella was cultured from four of 10 ulcerative colitis patients seen during a two year period raising the possibility that

TABLE 2

Summary of all Patients with Upper Gastrointestinal bleeding Admitted to GIMC in 1969.

(Total No. 50 Patients)

Diagnosis	Percent
Esophageal Varices	38%
Esophageal Ulcer	2%
Esophagitis or Mallory-Weiss Syndrome	14%
Total Esophagus	54%
Stress Gastric Ulcer	4%
Hemorrhagic Gastritis	24%
Gastric Ulcer	16%
Total Stomach	44%
Duodenal Ulcer	2%
Total Duodenum	2%

these were cases of salmonella ulcerative colitis. We have not seen any cases of severe ulcerative colitis. No patient required surgery or long term steroids. No serious extracolonic manifestations were seen. Most of the patients with ulcerative colitis responded well to conservative therapy. The usual psychiatric factors of other populations with ulcerative colitis were not found.

Diverticulitis and Diverticulosis are extremely rare in the Navajos, even in the older age group. Clinical disease related to diverticula is seldom encountered, possibly because constipation is rarely seen in the Navajo.

The Navajo diet is frequently high in corn, beans and tomatoes, and therefore they do eat a fair amount of roughage. Navajos do not drink milk as a rule, but they have not been studied for lactase deficiency, and their distaste for milk may just be on a cultural basis.

Cirrhosis was seen often at the GIMC. The high prevalence of alcoholism and the low nutritional value of their food contributed to this. Most of the cirrhosis seems to be found in the vicinity of Gallup, Shiprock, and Winslow where alcohol is available. The rural Navajo who lives in the middle of the reservation has a lower prevalence of cirrhosis.[13] Only a solution to the basic factors involved in alcoholism will help solve this problem. An autopsy study of Southwestern Indians showed cirrhosis in 14 per cent of autopsies, compared to four per cent in non-Indians.[25]

Carcinoma

It is interesting that most initial reports of Navajo tumors demonstrated a lower incidence of carcinoma than among non-Indian people. Hesse reported in 1964 that only 4.8 per cent of all deaths in Navajos were from cancer versus 15.7 per cent in the United States as a whole.[14] However, as time has gone by more and more cases of tumors have been reported in all the Indian tribes. An autopsy study at the Phoenix Public Health Hospital in 1967 demonstrated that neoplasms represent 17 per cent of autopsies as against 16.2 per cent in non-Indians. The same incidence as in non-Indians was found in lymphatic tumors and breast cancer. The author noted an increased incidence of carcinoma of the ovaries, liver, kidneys, prostate and gallbladder, and a decreased incidence of cancer of the uterus, stomach, lung and pancreas.[25]

TABLE 3[24]

Annual First Hospitalization Rates Per 100,000 Population.

	Ulcerative Colitis	Regional Enteritis
England	6.5	0.8
Norway	2.0	0.25
Baltimore (non-white)	0.45	0.04
Baltimore (white)	3.5	1.35
Navajos	5	0.5

Carcinoma of the Cervix. One would expect a higher incidence of carcinoma of the cervix in Navajo women because of promiscuity, early coitus, poor hygiene and lack of circumcision. However, Jordan et al., in 1965 reviewed 35,259 Navajo women over the age of 15 and found that 3.3 out of 1,000 Indian women examined had carcinoma-in-situ compared with 7.9 for non-Indians.[26] Salsbury et al., performed Papanicolaou smears on 1,092 Navajos over the age of 22 finding only one carcinoma,[8] whereas most general studies in the United States indicate a 1.8 per cent incidence of carcinoma. Bivens and Fleetwood in a large review study found 3.53 carcinomas of the cervix per 1,000 Indian women, compared to 4.25 per 1,000 non-Indian women in the same geographical area and during the same 10 year period. More carcinoma-in-situ was found in the past few years, when compared with invasive carcinoma. This is evidence that more Papanicolaou smears are being done and that the tumors are being found earlier.[27] Thus, carcinoma of the cervix appears to have an equal or somewhat lower incidence in Navajo women than in non-Indians.

Gastrointestinal Cancer

Carcinoma of the Colon. Colonic carcinoma represents 45 per cent of gastrointestinal tumors in non-Indians,[28] whereas it comprises only 14 per cent in Navajos. Could this be related to the absence of diverticulitis and diverticulosis or to the absence of constipation? Many factors have been studied, but there is little evidence to allow us to blame carcinoma of the colon on any

particular etiologic factor other than genetic predisposition. There is no proof that diverticula predispose to the development of carcinoma, although frequently the two conditions co-exist.[29] Carcinoma of the colon is also rare in many African tribes who are also on a high roughage diet and this may be a factor.

Carcinoma of the Gallbladder represents six per cent of gastrointestinal tumors in non-Indians[28] as contrasted to 41 per cent in Navajos studied at the GIMC[30] from 1968 to 1970. Carcinoma of the gallbladder was seen in an 11-year-old girl. Here again one wonders whether nutritional factors might play a role in gallbladder cancer, but it is puzzling that all the Indian tribes with their different diets still show a high prevalence of biliary carcinoma.[25] Approximately five per cent of cholecystectomies in Navajos uncover a carcinoma,[16,17,30] and 3.6 per cent of all autopsies had a carcinoma of the gallbladder versus 0.32 per cent in the United States.[14]

Cancer of the Pancreas and Esophagus show about the same incidence in Navajos as in the rest of the United States.

Carcinoma of the Stomach. Early reports seemed to indicate that there was less carcinoma of the stomach among Navajos,[14,25] but either the incidence has increased or such patients seek medical attention more often. At the GIMC they represent 26 per cent of the gastrointestinal tumors as against 20 per cent in non-Indian populations.[28] This is consistent with the increased incidence of achlorhydria.[23] While the incidence of carcinoma of the stomach in the United States has dropped,[31] it has increased in the Navajo nation. Many factors may play a role in this. Carcinoma of the stomach has appeared to be a disease of poor people on high carbohydrate and low fruit and vegetable diets,[31] with early loss of teeth.[32] It also appears to parallel the incidence of gastric ulcers and to have an inverse relationship to the incidence of carcinoma of the colon.[31,32] All of these factors occur in the Navajo nation.

TABLE 4
Percent of Gastrointestinal Cancers

	Non-Indians (28)	Navajos (30)
Stomach	20	26
Colon	45	14
Biliary	6	49
Pancreas	17	5
Small Bowel	2.4	1
Liver	4	5

In addition, cancer of the stomach is common in Japan and China; the Navajo's Athabascan ancestors apparently came from that area (Table 4).

Carcinoma of the Lung, Larynx, and Bladder are almost unheard of, possibly because Navajos do not smoke.

Lymphomas occur in Navajos in the same frequency as in the United States as a whole. However, in Navajos Hodgkins Disease represents 20 per cent of the lymphomas, whereas in non-Indian populations it accounts for 60 per cent of cases. This difference could be just from genetic susceptibility. Chronic myelogenous leukemia is seen often in adults, whereas chronic lymphocytic leukemia is not seen. It is interesting that chronic lymphocytic leukemia is also rare in Japan.[33]

Nasopharynx and Sinus carcinomas are seen frequently, though no accurate figures are available. It is our impression that they are more frequent than in other areas. This could be related to the extremely dry environment in which the Navajos live. The Chinese and the people of Southeast Asia also have this tumor in high frequency.[32]

Neurological Diseases. Pathologists are always impressed by the lack of cerebral vascular arteriosclerosis noted in Navajos at autopsies. Whenever the clinical picture of a cerebral vascular accident is encountered, trauma, subdural hematoma, tuberculosis or a tumor must be considered. Most of the cerebral vascular accidents seen have been in diabetics.

Multiple sclerosis, amyotrophic lateral sclerosis and other demyelinating diseases are seen. Parkinson's is also encountered. Peripheral neuropathies secondary to trauma, ethanol or diabetes are frequently encountered and are a source of considerable disability.

Of interest, only one per cent to two per cent of Navajos having skull x-rays at GIMC showed pineal calcification.

Infectious Diseases

Tuberculosis is probably the most widespread infectious problem in the Navajo Reservation. Eight and three-tenths per cent of autopsies, including other Southwestern Indians, were found to show active tuberculosis.[25] Hesse found tuberculosis to be responsible for five per cent of deaths in Navajos compared to 0.7 per cent in all races.[14] Tuberculosis can present in many different forms and should be considered the working diagnosis when a pulmonary coin lesion is present. Pleural effusion, weight loss, fever of unknown origin, a deterioration in a cirrhotic, brain tumors, strokes, hematuria, hemoptysis and adenopathy—all these things which are often associated with other illnesses elsewhere make us think of tuberculosis first when we are dealing with a Navajo. We have had several cases where carcinoma of the stomach was seen by upper gastrointestinal series and the apparent Virchow nodes were presumed to be metastatic until a biopsy showed them to be tuberculous.

The enteric diseases: salmonella, shigella and virus enteritides are frequent. In the Navajo area an attack rate of 297 cases of shigella per 100,000 population has been reported, whereas the entire United States including Indians reported 4.6 cases per 100,000 population. Forty-four per cent of the cases are in the age group of 1 to 4 years with a peak in July, August and September.[34] Salmonellosis is also a frequent problem. One to two cases of tularemia and bubonic plague are seen every year.

We often see subacute bacterial endocarditis because of the high incidence of rheumatic heart disease and poor dental care.[35]

Syphilis, gonorrhea, and lymphogranuloma venereum are common. Thirteen per cent of the people seen at the GIMC had a positive serology. This may be related to the alcohol problem. At the GIMC, 30 to 60 cases of gonorrhea are diagnosed every month, and these represent only 25 per cent of the area total.[36] This adds up to 200 new cases every month for a population of 100,000.

Tetanus has not been reported in spite of the large number of severe and unattended wounds which become infected. Possibly the

dryness of the environment does not allow Clostridia to survive. Many Navajos have had tetanus toxoid, but one would doubt that this is the only cause for the lack of tetanus.

Sarcoid is another disease that has not been diagnosed in Navajos.

Navajo Arthritis

Navajos do not have gout. Rheumatoid arthritis and osteoarthritis are present in the usual incidence. A new entity which could be called "Navajo Arthritis" has been encountered. It is an acute, self-limited polyarthritis most often affecting the knee but may also involve other joints. All these patients have negative tests for rheumatoid factors, LE cells and negative cultures. They recover completely without antibiotics after a two to three week interval. This may represent a mild form of rheumatoid arthritis without positive tests for rheumatoid factor or a peculiar mild form of hypersensitivity to the gonococcus without actual joint infection.[37]

Heart Disease

Heart disease is responsible for 5.9 per cent of all deaths versus 38.7 per cent in the other races of the United States.[14] The streptococcus is endemic at all times and high ASO TITERS are seen often.[35] Most school youngsters have ASO TITERS over 250, and rheumatic fever and rheumatic heart disease are common. Congestive heart failure secondary to a myocardiopathy of unknown etiology is often found. A search for amyloid, hemochromatosis and other etiologies is usually fruitless.[38] It is interesting that in our experience most of these patients were alcoholics, whereas Brandfonbrener et al., report that only two of their patients were alcoholics.[38]

In contrast, atherosclerosis and coronary disease are rare. Only 14 per cent of Navajos over 20 had atherosclerosis of the aorta at autopsy, compared to 37 per cent at the Mayo Clinic.[14] Gilbert studied 10,267 consecutive admissions to the Fort Defiance Hospital and found no recorded admissions for coronary disease as compared to 125 admissions for cholecystitis. He compared this with a similar number of admissions to St. Joseph Hospital in Albuquerque, a hospital of the same size, where primarily non-Indians are treated. There were 146 coronary thromboses admitted over a four year period.[39] These differences are probably not due to dietary factors.

The Navajo diet has been well studied and has been found to be adequate in calories and very high in animal fats. Some Navajo wells contain hard water, but this is very variable and most Indians use water from many different wells.[22,39,40]

Later studies show that coronary disease does occur, but only in one-fourth to one-tenth the incidence of non-Indians. In a study of 4,741 records of Navajos over the age of 30 compared with 1,478 white patients at Bataan Hospital in Albuquerque as controls, data was obtained showing that 86 per cent have a normal electrocardiogram and that 78 per cent of Navajos have no atherosclerosis at autopsy.[41] (Table 5).

The incidence of coronary disease in Navajos has been compared to the Framingham Study and is definitely much lower. Eight out of 1,000 Navajos in Many Farms had coronary heart disease as against 32.9 out of 1,000 Anglos in Framingham.[14] Also blood pressure, serum cholesterol and the incidence of all ECG abnormalities including left ventricular hypertrophy is below Framingham expected figures.[22]

TABLE 5[41]

Electrocardiographic Findings

	Navajo	Bataan Hospital
Acute Myocardial Infarction	0.9%	9.2%
Old Myocardial Infarction	1.8%	3.5%
Normal	86.1%	55.7%

Non-specific changes make up the rest.

Autopsy

Degree of Atherosclerosis	Navajo	Bataan Hospital
None	78 %	18 %
Minimal	14.6%	11.6%
Moderate	2.4%	32.6%

Practically speaking, coronary disease is unusual. One-hundred-year-old people with perfectly normal cardiograms are often seen and the elderly Navajos tolerate surgery with a remarkable paucity of cardiac complications. However, the incidence may be increasing since coronary occlusions in diabetic Navajos are now being documented more often.

Endocrine

Thyroid. Thyroid disease has been well studied in Navajo Indians. PBI's are generally normal,[22] though both thyrotoxicosis and hypothyroidism have been recorded. Goiters are common, though many of them are asymptomatic. Thyroiditis and neoplasms of the thyroid are also seen.

Cholesterol levels in Navajos have been found to be somewhat lower than in non-Indian populations. The average is 190 mg per cent. There is also a lack of increasing cholesterol with aging and obesity.[40] Hyperlipemia has been documented in Navajos, although the exact frequency is unknown.

Obesity occurs in Navajos less frequently than in non-Indians with only 10 per cent being considered obese against 30 per cent in the general United States population.[22]

Sheehan's syndrome occurs with amazing frequency among the Navajos and is probably related to the high incidence of obstetrical complications. On the average 8 to 10 cases a year are seen at the GIMC. Prevalence figures are not available.

Addison's disease is also frequently encountered; this may be related to the high incidence of tuberculosis.

Diabetes Mellitus. Diabetes is not uncommon among the Navajo and has a prevalence of 0.9 per cent of the general population and 2.3 per cent of those over the age of 40. It is striking that juvenile diabetes is not seen and the youngest reported has been 20 years of age.[42] The acute complication of ketoacidotic coma is rare, though ketoacidosis is not uncommon. The chronic manifestations of retinopathy and peripheral vascular disease (coronary arteriosclerosis and gangrene) are uncommon.[42,43] This is in striking contrast to the 37 per cent of patients at the New England Deaconess Hospital having coronary artery disease, 16 per cent having peripheral vascular disease, and 38 per cent having diabetic retinopathy.[44]

Plasma glucose and insulin studies have revealed that the significantly reduced carbohydrate tolerance is secondary to insulinopenia.[45]

Because of their socio-cultural characteristic and their vast, poorly accessible reservation, the management of diabetes in the Navajos poses special problems. Their dietary habits and the limited accessibility to a variety of foods make it almost impossible to follow a diabetic diet. Oral hypoglycemic agents are given preference to insulin because of a reluctance of the Navajos to give themselves injections, and more importantly high temperatures inactivate insulin and there is a lack of refrigeration facilities. Despite these limitations diabetes remains mild and tolerance to blood sugars of 600 mg per cent for long periods, without complications, is common.

Pulmonary Disease

Emphysema by itself is not common, except as a result of far advanced tuberculosis. This is mostly seen in the older Navajos who grew up before streptomycin. The younger patients who do not smoke and whose tuberculosis is adequately treated do not get emphysema.

Asthma and chronic obstructive pulmonary diseases are extremely rare. Bronchiectasis, on the other hand, is common and is the result of recurrent pneumonias in childhood or adulthood that have not been properly treated and often present a difficult therapeutic problem. Lobar pneumonia, especially pneumococcal, is a cause of great mortality and disability in the winter months.

Ears

Acute and chronic otitis media is a major problem on the reservation. Four per cent of high school students were found to have perforated drums. Congenital aural atresia occurs in 2.5 cases per 3,000 births per year. Acoustic neuromas and Menieres have never been reported. Hereditary and congenital deafness also have never been reported. There are only three cases of documented otosclerosis.[46]

Eyes

Trachoma is still endemic among the Navajos.[47] (Table 6). As a result of the four per cent to 10 per cent prevalence of active trachoma, there is also a serious problem with the scarring of Grade four trachoma. An active campaign of trachoma control is being conducted and the prevalence can be expected to decrease fairly rapidly.

Pterygia are common probably as a result of the exposure to solar radiation.

A high degree of astigmatism in children has been noted, and this is probably inherited. There is a lower incidence of primary open angle glaucoma and of diabetic retinopathy than in the general population. Probably the most serious eye problems are those secondary to trauma; hyphemas and perforating wounds are frequently encountered.

TABLE 6[47]
Trachoma Among the Navajo Indians

Age	Active	Inactive
6- 9	4 %	0.6%
10-13	6.3%	3.8%
14-19	9.7%	7.2%
Over 20	6.7%	46.5%

Conclusion

An attempt has been made to review information concerning illness among the Navajo Indians from the literature and our own experience at the GIMC in an effort to outline basic differences from the rest of the United States.

Many of these differences could be strictly hereditary, some could just be a reflection of their way of life.

The lack of carcinoma of the lung and of chronic pulmonary disease helps us reinforce the dangers of smoking. The lack of duodenal ulcers and coronary disease suggests again their relationship to chronic and acute anxiety. The rarity of carcinoma of the colon and diverticulosis might make us wonder if dietary factors and chronic constipation could play a role in these ailments. The lack of pancreatitis needs more exploration, but could possibly be used to prove or disprove a common channel theory for pancreatitis. The high incidence of streptococcal diseases in this area[35] lends itself to various epidemiologic studies and to the trial of new methods for the elimination of this organism. The new entities of Navajo arthritis[36] and Navajo diabetes[42] are interesting and deserve further study. The high incidence of cholelithiasis and carcinoma of the gallbladder requires further study. Understanding of metabolic defects present in this population may help us define the etiology of this disease.[18] The high incidence of shigellosis, tuberculosis and alcoholism are the tragic aspects of Navajo life and represent ongoing problems for the Public Health Service.

It will be interesting in retrospect 20 years from now to examine how many of these differences will have disappeared as the Navajo life style becomes anglicized, and as the natural selection engendered by their high infant mortality becomes less prominent.

Continued documentation is necessary to elucidate many of the differences covered here; it is hoped that this paper is a start in that direction. •

ACKNOWLEDGMENT

The author wishes to thank John H. Saiki, M.D. and Ralph C. Williams, Jr., M.D., for their valuable help and advice.

PICKER Medical Products

3890 ELM STREET — TEL. 388-5731 — DENVER, COLORADO 80207

Offices also in:
Colorado Springs, Colorado
2236 Glenwood Circle, 635-8768

Salt Lake City, Utah
21 Kensington Street, 487-7519

Albuquerque, New Mexico
113 Sierra Dr., S.E., 255-1288

Medical X-Ray Equipment

Accessories & Film

Nuclear Equipment

REFERENCES

[1] Underhill, R. M.: The Navajos, University of Oklahoma Press, 1956, p. 146.

[2] Porvaznik, J.: Traditional Navajo Medicine. General Practitioner, 36:179-182, 1967.

[3] Underhill, R. M.: The Navajos. University of Oklahoma Press, 1956, p. 248.

[4] Ogden, M., Spector, M., and Hill, C.: Suicides and Homicides Among Indians. Public Health Report, 85:75-80, 1970.

[5] Adams, M. S., and Niswander, J. D.: Health of the American Indian—Congenital Defects. Eugenics Quarterly, 15:227-234, 1968.

[6] Woolf, C. M.: Albinism Among Indians in Arizona and New Mexico. American Journal of Human Genetics, 17:23-35, 1965.

[7] Jaffe, B. F., and DeBlanc, B. G.: Cleft Palate, Cleft Lip and Cleft Uvula in Navajo Indians. The Cleft Palate Journal, 7:300-305, 1970.

[8] Salsbury, C. G., Howard, F. H., Bassford, P. S., Atkinson, G. P., and Green, R. W.: A Cancer Detection Survey of Carcinoma of the Lung and Female Pelvis Among Navajos on the Navajo Indian Reservation. Surgery, Gynecology and Obstetrics, 108:257-266, 1959.

[9] Melartin, L., and Blumberg, B. S.: Albumin Polymorphism (Albumin Naskapi) in Eskimos and Navajos. Nature, 218:787-789, 1968.

[10] Balsamo, P. A., Hardy, W. R., and Scott, E.M.: Hereditary Methemoglobinemia Due to Diaphorase Deficiency in Navajo Indians. Journal of Pediatrics, 65:928-930, 1964.

[11] Findley, D.: Some Health Problems of the Navajo Indians. Nebraska Medical Journal, 49:326-332, 1964.

[12] Loughlin, B. W.: Pregnancy in the Navajo Culture. Nurses Outlook, 13:55-58, 1965.

[13] Kunitz, S. J., Levy, J. E., and Everett, M.: Cirrhosis Among the Navajo. Quarterly Journal of Studies on Alcohol, 30:672-685, 1969.

[14] Hesse, F. G.: Incidence of Disease in the Navajo Indians. Archives of Pathology, 77:553-557, 1964.

[15] Sievers, M. L., and Marquis, J. R.: The Southwestern American Indian's Burden: Biliary Disease. Journal of the American Medical Association, 182:570-572, 1962.

[16] Sampliner, J. E., and O'Connell, D.: Biliary Surgery in the Southwestern American Indian. Archives of Surgery, 96:1-3, 1968.

[17] Brown, J. E., and Christensen, C.: Biliary Tract Disease Among Navajos. Journal of the American Medical Association, 202:1050-1052, 1969.

[18] Small, D. M., and Rapo, S.: Source of Abnormal Bile in Patients with Cholesterol Gallstones. New England Journal of Medicine, 283:53-57, 1970.

[19] Colcock, B. P., and Perey, B.: The Treatment of Cholelithiasis. Surgery, Gynecology and Obstetrics, 117:529-534, 1963.

[20] Smith, R. F., Conklin, E. F., and Porter, E. R.: A Five Year Study of Choledocholithiasis. Surgery, Gynecology and Obstetrics, 116:731-740, 1963.

[21] Amoury, R., and Barker, H. G.: Multiple Biliary Enteric Fistulas. American Journal of Surgery, 111:180-185, 1966.

[22] Fulmer, H. S., and Roberts, R. H.: Coronary Heart Disease Among the Navajo Indians. Annals of Internal Medicine, 59:740-764, 1963.

[23] Sievers, M. L.: A Study of Achlorhydria Among Southwestern American Indians. American Journal of Gastroenterology, 45:99-108, 1966.

[24] Mendeloff, A. I., Monk, M., Siegel, C. I., and Lilienfeld, A.: Some Epidemiological Features of Ulcerative Colitis and Regional Enteritis. Gastroenterology, 51:748-756, 1966.

[25] Reichenbach, D. D.: Autopsy Incidence of Diseases Among Southwestern American Indians. Archives of Pathology (Chicago), 84:81-86, 1967.

[26] Jordan, S. W., Munsick, R. A., and Stone, R. S.: Carcinoma of the Cervix in American Indian Women. Cancer, 23:1227-1232, 1969.

[27] Bivens, M. D., and Fleetwood, H. O.: A 10 Year Survey of Cervical Carcinoma in Indians of the Southwest. Obstetrics and Gynecology, 32:11-16, 1968.

[28] The National Health Education Committee, Inc.: Facts on the Major Killing and Crippling Diseases in the United States Today; Cancer, p. 4, 1964.

[29] Ackerman, L. V., and del Regato, J. A.: Cancer. C. V. Mosby Company, St. Louis, Missouri, 1962, p. 649.

[30] Rudolph, R., Cohen, J. J., and Gascoigne, R. H.: Biliary Cancer Among Southwestern American Indians. Arizona Medicine, 27;10:1-4, 1970.

[31] Raven, R. W., and Roe, F. J. C.: The Prevention of Cancer. Appleton Century Crofts, 1967, pp. 100-101.

[32] Shivas, A. A.: Racial and Geographical Factors in Tumor Incidence. Edinburgh University Press, 1967, pp. 47-51, 185.

[33] Finch, S. C., Hoshino, T., Itoga, T., Ichimaur, M., and Ingram, R. H.: Chronic Lymphocytic Leukemia in Hiroshima and Nagasaki. Blood, 33:79-86, 1969.

[34] Reeler, L. B., and Spector, M. I.: Shigellosis Among Indians. Journal of Infectious Diseases, 121:355-357, 1970.

[35] Perlman, L. V., Herdman, R. C., Kleinman, H., and Vernier, R. L.: Poststreptococcal Glomerulonephritis. Journal of the American Medical Association, 194:63-70, 1965.

[36] Outpatient Morbidity Reports, Indian Health Service USPHS Hospital, Gallup, New Mexico. May 1969—March 1970.

[37] Muggia, A. L., Bennahum, D., and Williams, R. C.: Navajo Arthritis—An Unusual, Acute, Self Limiting Disease. (To be Published in Arthritis and Rheumatism).

[38] Brandfonbrener, M., Lovekin, W. S., and Leach, J. K.: Cardiomyopathy in the Southwest American Indian. British Heart Journal, 32:491-496, 1970.

[39] Gilbert, J.: Absence of Coronary Thrombosis in Navajo Indians. California Medicine, 82:114-115, 1955.

[40] Sievers, M. L.: Serum Cholesterol Levels in Southwestern American Indians. Journal of Chronic Diseases, 21:107-115, 1968-69.

[41] Streeper, R. B., Massey, R. U., Liu, G., Dillingham, C. H., and Cushing, A.: An Electrocardiographic and Autopsy Study of Coronary Heart Disease in the Navajo. Diseases of the Chest, 38:305-312, 1960.

[42] Saiki, J. H., and Rimoin, D. L.: Diabetes Mellitus Among the Navajo. I. Clinical Features. Archives of Internal Medicine, 122:1-5, 1968.

[43] Prosnitz, L. R., and Mandell, G. L.: Diabetes Mellitus Among Navajo and Hopi Indians: The Lack of Vascular Complication. American Journal of Medical Sciences, 253:700-705, 1967.

[44] Bryfogle, J. W., and Bradley, R. F.: The Vascular Complications of Diabetes Mellitus. Diabetes, 6:159-167, 1957.

[45] Rimoin, D. L., and Saiki, J. H.: Diabetes Mellitus Among the Navajo. II. Plasma Glucose and Insulin Responses. Archives of Internal Medicine, 122:6-9, 1968.

[46] Jaffe, B. F.: The Incidence of Ear Diseases in Navajo Indians. Laryngoscope, 79:2126-2133, 1969.

[47] Lawler, D. J., Biswell, R., Sharvelle, D. J., and Carreno, O.: Trachoma Among the Navajo Indians. Archives of Ophthalmology, 83:187-190, 1970.

Publication rules and suggestions to authors

1. Who may submit articles. The Rocky Mountain Medical Journal ordinarily accepts only articles prepared by members of the state societies we serve and by guest speakers at their official meetings.

2. Method of preparation. All material for publication must be typewritten, double spaced, with liberal margins, using only one side of the paper, pages consecutively numbered, and preferably on standard 8½ x 11 white bond paper. Carbon copies are *not* acceptable.

Title (preferably short) and author's name, city and state must appear at the top of the first page. Second and subsequent pages should be identified with consecutive page numbers and author's surname. If physician authors possess more than one degree, the MD only is used. Lesser degrees of non-MD authors or co-authors may be used.

Please include beneath the title or at the top of the first page a brief paragraph stating what the article is designed to show and, therefore, why it should be read. This introductory feature is, in editorial parlance, called the "blurb"; it is printed in bold type.

3. Where to submit material. All copy must be sent to the editor for the state in which the material originates. Editors for each state, with their mailing addresses, are listed monthly on the Table of Contents page of the Journal.

4. Acceptance or rejection. The state editor will (1) tentatively accept the article, (2) return it to the author with suggestions for revision, or (3) reject it. He will edit and forward approved copy to the publication office in Denver for final editing and scheduling.

5. Order of publication. Ordinarily, articles will be published in the order received. Those whose value is seasonal, whose value would be lost if publication is delayed, or which reflect priority of original research, are given special consideration. State presidential addresses, programs, state society minutes, and timely organization announcements are given priority.

6. Length of articles. Scientific papers should be "boiled down" not to exceed ten pages of double-spaced typewritten standard 8½ x 11 inch sheets. Shorter papers are more acceptable to editors and readers, and earlier publication is probable. Every journal is in competition for the reader's time, and condensation is the order of the day. For this reason, and because of financial and space limitations, we request that copy be condensed to the greatest extent consistent with conveying the message.

7. Illustrations. A limited number of illustrations or "cuts," usually up to six, will ordinarily be accepted within our own publication budget if the editor believes they enhance the value of the article. Clear photos, simple diagrams or line drawings in black on white, printing rather than writing, reproduce well. Cuts should be mounted separately, and the paper or cardboard mounts should be the same size as that upon which the article is typed. Each should have its caption below: Fig. 1, Fig. 2, etc., with a short descriptive sentence. Authors will be billed our cost for excess above six cuts.

8. Tables. Tables should be simple, presenting only brief relevant data, amply spaced. They should be placed at the back of the manuscript on separate sheets. Each should have its number and title above: Table 1, Title; Table 2, Title; etc. Long, large, or complicated tables ordinarily are not acceptable.

9. Case reports. Case reports are popular with our readers. A brief introductory statement concerning the condition or disease, tells why the case is presented. The report follows with a separate heading, CASE REPORT or CASE 1, CASE 2, etc. Include only relevant, positive laboratory and other data. Names, initials, and numbers are unimportant; age, sex, and sometimes occupation are significant. Minimize dates; then make it month, date, year—as February 9, 1969; not 2/9/69. After the case presentation, review or sum it up under a heading such as Discussion, Comment, Summary or Conclusion.

10. Footnotes. Footnotes must be brief. One at the bottom of the first page should state the Society and date of presentation, and institutional origin, if any. Special titles or position of the author, acknowledgements, etc., will be added according to simplicity, editorial policy and discretion.

11. References. Reference lists rarely add to the value of an article for the majority of readers. We will make every effort to publish short reference lists, but long ones will be deleted. Incidentally, the proper heading is "References," not "Bibliography." The latter implies everything in the literature upon the subject. Make them uniform in style and brief, as: Jones, W. K.: Pyelonephritis in Infancy. JAMA 141:75. 1964.

12. Editorials. We would like to have more submitted by our State editors and the membership at large. Readers must get tired of thunder from publication headquarters in Denver; frankly, we do too! Speak out, and we'll sign your name, initials, or respect your request for anonymity, as you choose. If you don't like something we do or say, please let us in on it; we could even stand to hear about it if something happens to please you. A "Letter to the Editor" may help you get something off your mind. We're asking for it and we have a place to put it—in the Journal, that is!

13. Proofs. Galley proofs are submitted to the author, and prompt return is essential. Authors should correct typographical, grammatical, or rhetorical errors, but do not reinsert or rewrite sentences, paragraphs, tables, etc., which an editor may have deleted, condensed, or paraphrased. When an article reaches the galley-proof stage, the author may NOT re-edit his article; that is the privilege of the Journal's editors.

14. Reprints. Most authors desire reprints. Our printing firm provides them on a non-profit basis. They MUST be ordered when the author submits his corrected proof.

15. Our Journal is copyrighted. We and most state and regional journals owned by state medical societies have granted each other continuing copyright permission to copy or quote with proper credit. Copyright permission is not granted to commercial or privately owned publications.

Cardiogenic shock*

An unusual case

Carl E. Bartecchi, MD and
John J. Howe, MD, Pueblo, Colorado

A case of cardiogenic shock with its not unusual outcome is presented. In this instance, the well-known syndrome was related to extensive metastatic lesions involving the entire pericardium.

THE FOLLOWING CASE HISTORY is that of a patient who presented with a severe, though not unusual, picture of cardiogenic shock. The cause of this syndrome was not realized during the patient's life.

CASE REPORT

A 46-year-old white businessman was first seen at the Southern Colorado Clinic on October 12, 1970. He complained of severe mid-epigastric pains, pointing to an area just below his xiphisternum, which had been present for two days. The pain was described as severe, constant, non-radiating, "knot-like," and unchanged by respiration, position or movement. He had a couple of episodes of vomiting during this period, and also noted that his bowel movements had been "loose," and very dark. He claimed to have been "healthy" prior to the onset of symptoms. He had lost about 10 pounds in the past three months.

He smoked 1 1/2 packs of cigarettes daily, and had done so for more than 20 years.

His past medical history was otherwise noncontributory. Family history was also noncontributory.

When first seen, the patient was lying down. He was brought from the waiting room to an examining table, where he might lie down, because he could not sit for any length of time. He looked pale, anxious, and in obvious distress. His pulse ranged between 110 and 120. His blood pressure, lying down, was 100/80. Shortly after assuming the sitting position, he became sweaty, with an obvious increase in pulse, and he quickly reassumed the lying position. Further examination revealed the neck veins to be distended at 30°. The chest was clear to auscultation and percussion. Examination of the heart revealed no abnormalities; PMI was in the fifth interspace, within 8 cm. from the mid-sternal line; no friction rubs were heard; no gallop rhythm was detected. Examination of the abdomen revealed the liver edge to be palpable. A rectal exam revealed no evidence of blood in the stool obtained. The rest of the examination was entirely negative.

Admission laboratory studies were as follows: Hgb 16.2; WBC 14,400; Sed rate 5; SGOT 58; LDH 467; CpK 11. Sixteen hours after admission the following studies were performed: Hgb 15.7; WBC 23,300; Platelets adequate on smear; Na 127; K 3.8; Cl 87; CO_2 28.5; FBS 95; BUN 11.5; Creatinine 2.5; Alkaline phosphatase 2.8; SGOT 760; Cholesterol 151; PBI 5.1. Urinalysis showed S.G. 1.017, Protein 2+, Glucose-0. A urine Na was 28 meq/1. Forty hours after admission studies were limited due to the difficulty drawing blood in this pre-terminal

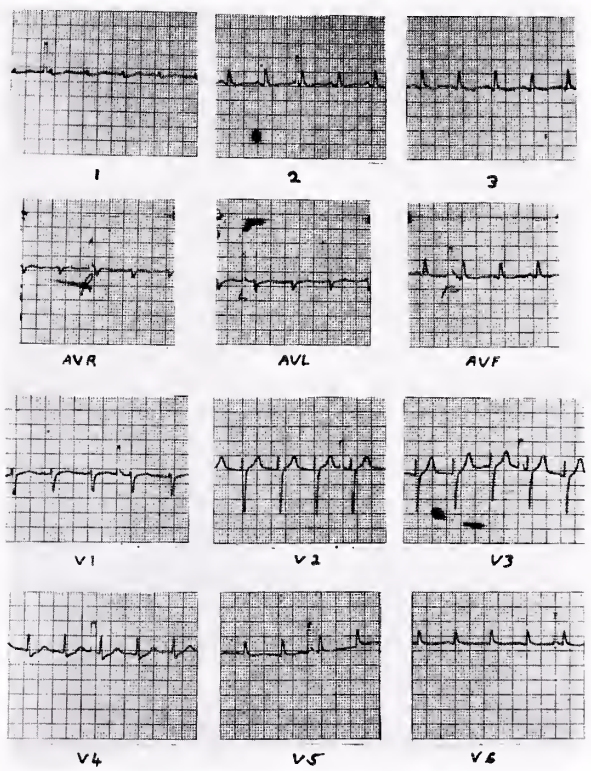


Fig. 1. EKG showing: diffuse T wave flattening Sinus tachycardia.

*From the Southern Colorado Clinic and Parkview Episcopal Hospital, Pueblo, Colorado.

period, but these were recorded: BUN 64; Na 111; K 6.6; Cl 77; CO_2 17.9.

An initial EKG showed T wave flattening in II, III, AVF, V5-6. Also seen was a sinus tachycardia with a rate of 115 (Fig. 1). Follow-up EKG's revealed the only changes to be related to the digitalis which had been added.

The patient's course over the next 42 hours after admission was that characterized by intractable hypotension, showing no prolonged responses to the common, as well as to some of the more recently touted approaches to the treatment of cardiac shock. Morphine, which was required for relief of pain, was kept at the minimal effective dose so as not to contribute to the hypotension. O_2 was given by nasal specs at commonly recommended flows. IV fluids were utilized to insure against hypovolemia.[1] The urine output by indwelling catheter was good during the early period after admission in spite of an obvious hypotensive state in which the systolic BP was as low as 70 mm Hg, the pulse 120, and the patient cold and clammy. As a result of the large fluid input, the patient maintained a good urine volume, with no signs of congestive failure. He at no time complained of shortness of breath, though lying either flat in bed or with his legs elevated. Pressor agents[2] begun shortly after his arrival at the hospital included metaraminol, which was effective initially, but soon gave way to levarterenol infusion. Isoproterenol[3] was then utilized, improving urine output considerably, but precipitating arrythmias, mostly in the form of PAC's at the dose required to maintain an adequate pressure. Along with the pressor agents, other modes of therapy were also utilized — digitalis, $NaHCO_3$, and the elevation of the patient's legs, all with varying and usually short lived effects. Some semblance of stability was obtained for a few hours by intermittently infusing levarterenol and isoproterenol.

At two different times over the first 24 hours, glucagon[4,5] was given by IV drip at a dosage of 2.5 mg per hour. The patient developed some nausea during the infusion, but this lasted for only a brief period. What was unexpected, however, was the development of a disturbing cough which

Fig. 2. Heart and Epicardium x40.

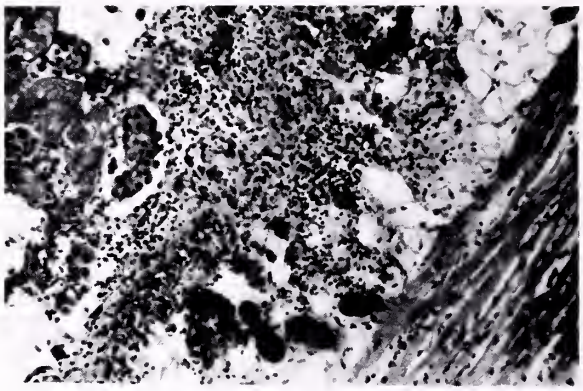


Fig. 3. Heart and Epicardium x100.

persisted in each case until the infusion was terminated. The coughing in each case would cease within a minute after the termination of the infusion and thus appeared to be related to the infusion.

The patient's course was rapidly downhill. Soon there was no response to isoproterenol. Only levarterenol was effective in reversing the shock picture. As a central venous pressure catheter was being put in place, the patient expired. Resuscitation efforts over a one hour period were unsuccessful.

At necropsy, the heart was enclosed in a pericardium thickened to 3-4 mm. with a shaggy, friable, papillary tan surface. The pericardium was loosely adherent, and there was no abnormal collection of fluid. Coronary arteries, myocardium, endocardium, and valves were all normal. Microscopically, the sections of pericardium and epicardium (Figs. 2 and 3) revealed a fibrin matrix containing clusters of undifferentiated carcinoma cells. Similar undifferentiated carcinoma with squamoid features replaced and enlarged the peribronchial, hilar, and to a much less degree, the cervical lymph nodes. Peribronchial lymphatics were plugged with tumor cells, which were also found in some alveoli (Figs. 4 and 5). The tumor was felt to arise from a lung primary. Incidental findings included pleural effusion of 250 c.c. on each side, and a prominent degree of liver congestion with centrilobular necrosis.

Discussion

In 1962 there appeared in the literature a review[6] of the experience of the Mayo Clinic of patients with secondary malignant disease of the heart, pericardium, or epicardium. In 13,314 necropsies, 189 patients had proven malignant lesions of the pericardium. In this groups of 189 patients, 70.9 per cent (134 patients) had no apparent impairment of cardiac function, and 29 per cent (55 patients) had significant impairment of cardiac function during life as a direct result of the

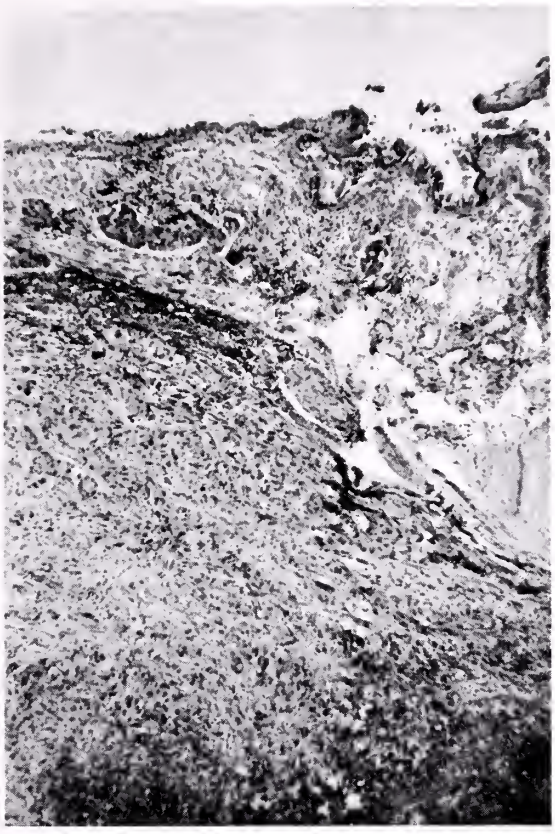


Fig. 4. Right Main-stem Bronchus x40.

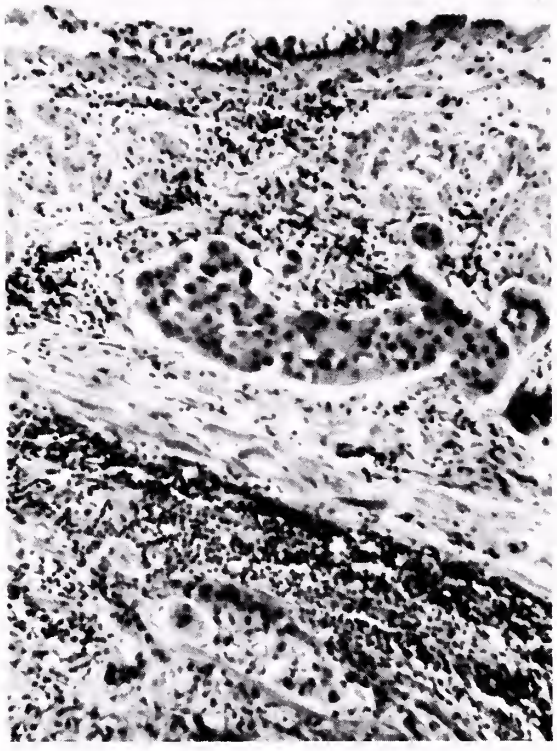


Fig. 5. Right Main-Stem Bronchus x100.

pericardial metastases. The primary malignant lesions were lung 24.6 per cent, breast 21.6 per cent, lymphoma 18.7 per cent, leukemia 6.7 per cent, malignant melanoma 6 per cent, renal carcinoma 5.2 per cent, sarcoma 3 per cent, pancreatic carcinoma 3 per cent and others 11 per cent.

The frequent involvement of the pericardium by direct extension of tumor has been commented on by others.[7] The blood stream is the usual route of metastasis in melanoma, leukemia, and sarcoma.[8] It is also claimed[8] that two-thirds of pericardial metastases simultaneously involve the myocardium.

In the 55 patients of the Mayo Clinic Study[6] whose pericardial malignant lesions impaired cardiac function, most were found to have pericardial fluid (300 ml - 2000 ml with a mean of 746 ml). Eight patients, however, had no fluid because pericardial adhesions had obliterated the sack. The authors in their formulation of the mechanisms whereby metastasis to the pericardium interfered with normal cardiac function arrived at the following conclusions. The most common mechanism was pericardial effusion. Next was a combination of pericardial effusion and myocardial invasion by neoplasm. Other mechanisms included cardiac constriction caused by encasement by neoplastic tissue, encroachment on great vessels, myocardial invasion alone or combinations of the latter mechanisms. Of interest in our patient is the lack of any of these mechanisms.

The authors[6] mention that a diagnosis of pericardial or cardiac malignant tumor was established or suspected clinically in 16 of their 55 patients. Common symptoms in these patients were, in the order of decreasing incidence: dyspnea, cough, anterior thoracic pain, and peripheral edema. The symptoms of thoracic pain were said to follow no definite pattern. There was no mention of a case where the pain was so severe, and such a prominent symptom, let alone in such an atypical location as the upper abdomen, as was the pain in our patient. The most frequent clinical signs included pleural effusion, hepatomegaly, orthopnea, cyanosis, venous distention, edema (leg), cardiac enlargement, pulmonary rales, dysphagia, spenomegaly, etc. Such findings, except for the neck vein

distention in our patient, were conspicuous by their absence. As in our patient, a friction rub was not found in most of their cases.

Obviously a chest x-ray would have been desirable in our patient. This study was delayed initially because of the adverse effects (on the BP) of the sitting position. In the Mayo Clinic study,[6] clues to the diagnosis of pericardial malignancy were found in only 28 of 55 patients. In our patient, from the findings at autopsy, it appears as if the chest x-ray would not have been able to suggest pericardial disease, and possibly not even pulmonary disease. Others[9] have commented on the paucity of x-ray findings in these cases and have noted the inability of as much as 200 ml. of pericardial fluid, found at autopsy, to produce recognizable enlargement of the cardiac silouette.

In the Mayo Clinic study,[6] the EKG in 27 patients with this study had T wave abnormalities in 25, low QRS voltage in 22 and sinus tachycardia in 15. Our patient had minimal T wave changes and sinus tachycardia. No arrythmias were detected other than those related to the isoproterenol infusion.

Of interest in our patient were the laboratory values in view of the extensive involvement of the pericardium and only modest involvement of the lung by the tumor. Studies were drawn prior to the development of congestive changes in the lungs and liver. Of interest was the low CPK and Sed Rate noted on the patient's admission to the hospital. The strong clinical picture for a myocardial infarction made these studies quite a surprise. The SGOT, LDH and elevated WBC were compatible with the picture of myocardial infarct. Two follow-up EKG's were done. The only change from the original tracing was the addition of the "digitalis effect."

Conclusion

A case is reported of an unusual presentation of secondary malignant tumor of the pericardium presenting as an acute myocardial infarction with resistant cardiogenic shock. An unusual, possibly specific effect of glucagon (persistent, distressing cough) is noted in this case. This case is compared and contrasted with a large series of tumors involving the pericardium collected at the Mayo Clinic.[6] The usefulness of a negative CPK study in this case is emphasized. •

ACKNOWLEDGMENT

We are indebted to Remigio Garcia, MD of the Department of Cardiology, Henry Ford Hospital, for his advice and recommendations, and to Judy Howe for her assistance in the preparation of this case report.

REFERENCES

[1] Loeb, Henry S., Pietras, Raymond J., Tobin, John R., and Gunnar, Rolf M.: Hypovalemia in Shock Due to Acute Myocardial Infarction. Circulation 40:653-659, 1969.

[2] Corday, Eliot: Pressor agents in Cardiogenic Shock. The American Journal of Cardiology 23:900-902, 1969.

[3] Weil, Max H., Shubin, Herbert: Isoproterenol for the Treatment of Circulatory Shock. Editorial, Annals of Internal Medicine 70:638-640, 1969.

[4] Wilcken, D. E. L., Luoff, R.: Glucagon in Resistant Heart Failure and Cardiogenic Shock. Lancet 1315-1317, June 20, 1970.

[5] Puri, Pritpal S., Bing, Richard J.: Effects of Glucagon on Myocardial Contractibility and Hemodynamics in Acute Experimental Myocardial Infarction. Basis for Its Possible Use in Cardiogenic Shock. American Heart Journal 78:660-668, 1969.

[6] Thurber, Deloran L., Edwards, Jesse E., Achor, Richard W. P.: Secondary Malignant Tumors of the Pericardium. Circulation 26:228-241, 1962.

[7] Shaeffer, W. E., Jr.: Metastatic Neoplasia of the Heart. Guthrie Clinic Bull. 4:5, 1961.

[8] Gore, Ira: Pathology of Pericarditis and Constrictive Pericarditis, in Cardiology, Clinical Cardiology (Vol. III) Part 8 Section 2 ed. by Luisada, Aldo, New York, McGraw-Hill, 1959.

[9] Biran, S., Hochman, A., Levij, I. S., and Stern, S.: Clinical Diagnosis of Secondary Tumors of the Heart and Pericardium. Chest 55:202-208, 1969.

Additional information available to the profession on request.
Eli Lilly and Company • Indianapolis, Indiana 46206

Lilly

101488

What is a Medical Management Consultant?

He is a businessman who specializes in the business side of medical practices. He has no products to sell, so he can bring an outside, unbiased-expert, third-party point of view to help you interpret your practice results and produce improvements & progress.

A medical management consultant helps you realize your practice goals and personal financial aspirations more quickly because his specialized experience eliminates your trial & error.

Medical management consultants sell no insurance, no investments, no forms, no systems. They work only on a fee-for-service basis for physicians. Their only income is from the professions which they serve.

Our firm is nationwide, but our home is in the Rocky Mountains — in Denver. There is a PMS consultant in your area. Just give him a call:

Albuquerque, New Mexico	Herb Hughes	(505) 298-5809
Albuquerque, New Mexico	Joe Listek	(505) 298-5809
Billings, Montana	Horry Miller	(406) 248-6203
Boulder, Colorado	George Hunt	(303) 444-3149
Colorodo Springs, Colorodo	George Schromeyer	(303) 598-2042
Denver, Colorodo	Dick McMullen	(303) 986-2394
Denver, Colorodo	Jim Meodor	(303) 623-7165
Denver, Colorodo	Ed Rorden	(303) 623-7165
Ogden, Utoh	Doyle Allen	(801) 394-5828
Santo Fe, New Mexico	Don Hughes	(505) 983-1314

Or clip the coupon below and drop it in the mail to our Central Office in Denver.

Have your President drop in to see me.

Name _____ Telephone _____

Address _____ City _____ State _____ Zip _____

PRACTICE MANAGEMENT SERVICES

601 BROADWAY DENVER, COLORADO 80203

Home hemodialysis in the Rocky Mountain region*

W. F. Pingerra, MD and J. H. Holmes, MD, Denver;
C. F. Gutch, MD and W. J. Kolff,MD, Salt Lake City

In the past four years, Home Dialysis Training Centers at the University of Colorado and University of Utah Medical Centers have trained 124 patients who have returned to their homes throughout the Rocky Mountain region to operate their own artificial kidneys. Practicing physicians in the area have assumed an increasing role in the care of these patients in their home communities. Early diagnosis of renal failure, along with the availability of hemodialysis and/or transplantation make care of patients with kidney disease in the Rocky Mountain area comparable wth the best available elsewhere in the country.

In 1964 independently, Merrill, Curtis, Shaldon, and others began to train patients who required regular hemodialysis to perform the procedure at home. Their reasons were twofold: (1) Hospital facilities for dialysis were inadequate for more than a fraction of the total number of people who might be helped by the procedure; (2) Expense of in-hospital dialysis, $20,000 or more per year, could be afforded by few families.

At the University of Colorado Medical Center, the problem was made acute by a rapidly developing kidney transplant program in that same era. Dialysis facilities were strained to support patients awaiting transplantation, or requiring it postoperatively. Some patients who were started on dialysis were unable to receive a transplant. Therefore, between May, 1965 and October, 1966, ten patients were started on home dialysis. The results were not encouraging. Besides problems with equipment, preparation of dialysis solutions, and supply of blood, there was a serious lack of medical and nursing support. Of those patients, three died within seven months; three others returned to in-center dialysis, and only three continued for variable periods up to 24 months. The tenth patient received a transplant after nine months of home hemodialysis.

In July, 1967, the University of Colorado Medical Center, the University of Utah Medical Center, and ten other centers across the United States entered contractual arrangements with the U. S. Public Health Service, Kidney Disease Control Program to explore the feasibility of home hemodialysis and to accurately determine the costs of such programs. The contracts were renewable for six years, with decreasing federal support each year to ensure that the programs might continue with support of insurance, state, local, and private funding at the end of that period. With the advent of the federally sponsored home dialysis training programs, the units at the University of Colorado and at the University of Utah have made maintenance hemodialysis available to patients throughout the Rocky Mountain region. Since the area covered by the *Rocky Mountain Medical Journal* is served primarily by these two centers, it is appropriate to review what has been accomplished during the past four years, and implications for the future.

In the past four years these two centers have trained and placed 124 persons in their homes with an artificial kidney. Table 1 is a brief breakdown of the activities at each center. At the University of Colorado, slightly under 14 per cent of persons who started home hemodialysis subsequently received

*From the Renal Division, Department of Medicine, University of Colorado Medical Center, Denver, Colorado; and the Division of Artificial Organs, Department of Surgery, University of Utah, Salt Lake City, Utah. Supported in part by USPHS Contracts No. PH86-67-227 and No. PH86-67-232.

TABLE 1.
PATIENTS TRAINED IN HOME DIALYSIS SINCE 1967

	Denver	Salt Lake City
Subsequently transplanted	7	19
Deaths	13	20
Transferred to other programs	7	5
Presently on dialysis at home	24	29
Total patients	51	73

transplants. This probably reflects the larger proportion of patients initially referred to that medical center as per primum candidates for transplantation, usually from a related donor. At the University of Utah, approximately 26 per cent of patients in home dialysis subsequently received transplants, reflecting the emphasis on cadaveric transplantation at this center, and the longer waiting period for a suitable donor kidney. At both centers, ages have ranged from 13 years into the 60's. At Colorado, the mean age is approximately 40, while at Utah it is somewhat lower, averaging 33 years.

The period required for training varies widely, from as little as four weeks to more than 20. The average training time at both centers is approximately seven weeks. Nationwide, the ratio of men to women on home hemodialysis is approximately three to two. At the University of Colorado the ratio has consistently been one to one, while at Utah, women predominate only in a 57 to 43 ratio. The reasons for this difference are not apparent.

Back-up in center dialysis for complications or intercurrent illness has decreased as both programs have gained maturity. About eight per cent of the dialysis treatments currently are of this nature. This is essentially the same as the national average, and significantly less than in the first years of the programs.

Shunt problems have been an anathema for patients in both programs, as in all chronic dialysis facilities. Although a few fortunate persons have cannulae that function well for many months, or even years, infection and thrombosis has limited shunt life for the majority to a few months. A number of patients have had all available cannula sites used up. Such complications account for the majority of hospitalizations. For these reasons most patients trained at both Denver and Salt Lake City now have internal A-V fistulae of the type originally devised by Cimino. The internal fistula has eliminated many of the problems of infection and clotting. It makes the dialysis procedure more tedious for the patient, and blood flow rates obtained are often less than desired, necessitating longer or more frequent dialysis.

Other causes for hospitalization include infection (sometimes with sepsis), cardiac failure, pericarditis, hypertensive encephalopathy, cerebrovascular accidents, gastrointestinal bleeding, fractures incident to osteodystrophy, and neuropsychiatric problems. Many of these resulted in death, directly or indirectly. The mortality of all patients entering and continuing home dialysis since the beginning of the program at Colorado has been 25.5 per cent (6.4% per year). At the University of Utah, the rate has been slightly over 27 per cent (6.8% per year).

One of the goals of the Public Health Service in establishing home dialysis training programs was to determine their feasibility as a means of rehabilitation. One index used for men has been return to work, either in the original or a new occupation, at a level of 30 to 35 hours per week. About three-fourths of the men have been able to achieve this goal after returning home. It has been the impression that a somewhat higher proportion of women were able to resume their household duties at perhaps 80 per cent of the usual level.

Unhappily, loss of time because of complications, or lack of stamina to carry on arduous physical activity, has caused some 40 to 50 per cent of men to be released by their employers, or forced to accept less remunerative jobs after several months. Thus the degree of rehabilitation tends to decline rather than improve with passage of time for men. The women seem to do better.

Forty per cent of patients starting home dialysis training at the Denver unit resided outside Colorado, while at Salt Lake City 44 per cent came from outside Utah. These nonresidents came from surrounding states of Wyoming, Idaho, Nebraska, Kansas, Nevada, Montana, New Mexico and others. The implications for supportive agencies in these states

is obvious. The combined population of Colorado and Utah is slightly under 3.5 million. The population of the rest of the area served is approximately 2.5 to 3 million.

Dialysis in the home has proved considerably less expensive than in-center hemodialysis—though not cheap. By meticulous conservation of supplies, or re-use of certain components, some patients have been able to hold cost of expendables to as little as $2,000 per year. Most are not able to be so economical, and supply costs will average $3,000 per year. Machine rental — varying from $50 to $75 per month must be added to this. Most patients have sizable bills for medications — to say nothing of hospital costs when complications occur.

On a more optimistic note, as physicians in the Rocky Mountain area have become familiar with the availability of home dialysis treatment, they have become interested in the continuing care of these patients. A large proportion of patients have personal physicians who supervise diet and fluid problems, attend to infections or other illnesses, and tremendously aid the patient in assuming his or her role in the community. As these physicians assume the primary role in the continuing care of the dialysis patients, the need for these people to return to the training center has been reduced to major problems only. This response by physicians in the community is not only of great psychological benefit to patients and their families, but affords a financial saving for them, and increases the chance for effective rehabilitation.

Discussion

Earlier referral of patients, better evaluation of the appropriate therapeutic approach, and experience gained in teaching methods as well as better organization have improved survival and rehabilitation of patients with end-stage renal failure. Dialysis in the home has proven economically, socially and medically to be advantageous.

The major medical problems relate to adequacy of diet, prevention of fluid overload, adequacy of dialysis, anemia, neuropathy, and disturbed calcium-phosphorous metabolism. While decreased, these still plague both patients and physicians.

Additionally, there are special social and family problems to be considered by personnel involved with these patients:

1. Rehabilitation for work entailing arduous or prolonged physical activity is difficult to achieve, although housewives seem to do well.

2. Operation of the artificial kidney in the home has a profound influence on the entire family. A negativistic attitude by the patient, or other family members — spouse or children — may disrupt the whole family relationship.

3. Reaction of the community in which the patient is situated has a significant effect. Overprotectiveness may be detrimental to the self-confidence and independence of the patient. Conversely, ignoring or avoiding the problem by friends and associates may cause the patient and family to feel abnormal and outcasts from their normal social environment.

Conclusions

The Rocky Mountain region encompasses a large geographic area which has only two large dialysis centers, thus imposing severe travel problems when a patient must be dialyzed in these centers. Thus home dialysis offers in this area greater feasibility for the patient to remain in his own home and community without imposing undue travel stresses on the family. Better rehabilitation has been achieved through the home training program as compared with in-center dialysis. Cost per year ranges between one quarter and one third that for in-center dialysis. Mortality rate is around 6.8 per cent in a high-risk population. With experience, the complication rate has been steadily reduced and now runs approximately eight per cent of total dialysis required per year. Effective support by the family physician for medical problems encountered by the patient significantly improves the success of the program, but the family physician is not required to supervise the dialysis procedure per se. His role should remain one of supporting the patients and coping with medical problems such as infections, regulation of hypertension, and treatment of heart failure and fluid overload whenever these problems arise.

Continued education in each community about home dialysis does help in returning the patient to a productive role in that community. •

Anesthesia in the Parkinsonian on levo-dopa*

Arnold H. Greenhouse, MD, Albuquerque, New Mexico

Discussion of management of an increasingly frequent and important problem.

LEVO-DOPA IS A widely used and remarkably effective agent in the management of Parkinsonism. Occasional patients receiving this medicine will require surgery. In such cases, both the attending physician and the anesthetist are faced with several problems, including when to discontinue and resume levo-dopa therapy, the choice of anesthetic agent and the management of complications. This situation is compounded by the profound effect of levo-dopa on the brain, cardiovascular system, gastrointestinal tract and other organs, each with a potential of causing major difficulties both during and after the operation. Unfortunately, almost no information has been published on this subject.

Parkinsonian patients often are poor surgical risks regardless of treatment because of their generally advanced age, the frequent presence of various systemic complications common to the elderly and certain features of the disease itself. Most important of the latter are rigidity and hypokinesia, both of which increase the possibility of urinary tract infections, decubiti and pneumonia. Over 80 per cent of patients have side effects to levo-dopa some of which could interfere with anesthesia and surgery. The most common reactions are anorexia, nausea, vomiting, orthostatic hypotension and psychiatric disturbances. Cardiac arrhythmias also occur but are less frequent.

*Paper presented at the Anesthesia Workshop sponsored by the New Mexico Association of Nurse Anesthetists, April 24, 1971, University of New Mexico School of Medicine, Albuquerque, New Mexico. The author is Professor and Chairman, Department of Neurology, The University of New Mexico, School of Medicine.

Physiologic Effects of Levo-dopa

Of concern to the anesthetist are certain cardiovascular effects of levo-dopa, all of which could be troublesome or even fatal. Presumably this drug is effective in Parkinsonism because of conversion to dopamine, a part of which is then changed to noradrenaline. Dopamine acts on both alpha and beta adrenergic receptors.[1] The former effect results in cardiac stimulation, with the possibility of increased cardiac contractile force, sinus tachycardia, increased A-V conduction and arrhythmias.[2] The first two of these actions could produce myocardial ischemia, particularly in patients with coronary artery disease. Additional potential hazards are ventricular tachycardia, auricular fibrillation and other disturbances of rhythm. Propranolol, an effective beta adrenergic blocking agent, is potentially useful in preventing these complications.

Alpha adrenergic stimulation by dopamine might produce vasoconstriction.[3] Although hypotension is a more common side effect of levo-dopa than is hypertension, excessive amounts of this substance have occasionally caused elevated blood pressure secondary to arterial narrowing. This problem is most likely to occur when MAO inhibitors are combined with levo-dopa, since dopamine breakdown is prevented. In such instances phentolamine (Regitine) is a specific antidote. For practical purposes, this complication is rarely seen, although careful blood pressure monitoring during surgery is obviously indicated.

Hypotension from levo-dopa is fairly common and is important in the surgical patient. Although one possible cause of this effect is mesenteric vasodilitation due to dopamine there is, at present, no general agreement as

to the exact mechanism of blood pressure lowering. Some investigators believe that this effect is centrally rather than peripherally mediated. Generally speaking, the hypotension occurs in the standing position and tends to disappear after several months of levo-dopa therapy. Therefore, this condition usually is not a problem for the surgeon or anesthetist, although blood pressure must be checked carefully during an operation and when the post-operative patient is initially ambulated.

Preparing the Patient for Surgery

Experience has shown that the most common operations in these individuals are transurethral prostatic resection and reduction of fractures. However, cholecystectomy, colonic resection, radical mastectomy and other major procedures also have been performed in our patients.

Elective surgery presents few difficulties, since time is sufficient to find and treat potential problems. A careful physical examination is necessary in all cases. Obviously, a thorough cardiovascular evaluation including an electrocardiogram and special attention to blood pressure is indicated. The presence of ectopic beats or other cardiac arrhythmias necessitates cardiologic consultation. It may be necessary to pre-medicate with propranolol if such abnormalities persist. Surgery should be postponed if there is active myocardial ischemia or heart failure. Urinary tract obstruction and infections are frequent in Parkinsonian patients and should be managed pre-operatively if present.

Emergency surgery poses a greater problem, since many serious abnormalities either may be overlooked or treatment might not be possible. Even in such instances, time should permit an EKG before the operation and cardiac monitoring during the procedure. The latter is, of course, also indicated in patients during elective surgery.

Of greatest interest is whether to discontinue levo-dopa therapy and if so, when the medicine should be stopped. The original directions issued to investigators during the collaborative studies prior to release of the drug called for an interval of 24 hours between the last dose of levo-dopa and surgery.[4] However, no explanations accompanied these instructions nor was anything said about the management of special problems. This approach proved satisfactory in patients for whom elective procedures were contemplated, but occasional individuals had emergency surgery or operations in hospitals where the nature of their treatment was unknown. In all of these cases encountered personally no problems developed and treatment was resumed without apparent difficulty.

If p r o l o n g e d cessation of levo-dopa therapy is contemplated, there probably should be a gradual tapering off of dosage. In patients with more than the mildest form of Parkinsonism, amantadine or the standard anticholinergic agents either should be continued or started. Severe worsening of Parkinsonism and marked immobility can occur if all treatment is stopped, a situation which could precipitate severe difficulties including pneumonia and respiratory insufficiency.

At a recent meeting of levo-dopa collaborative investigators sponsored by the Hoffman-La Roche Company it was mentioned that the effectiveness of a single dose of this medicine persists for from 4 to 6 hours.[5] This, apparently, means that long intervals need not elapse between an operation and the cessation of treatment. However, the actual experience mentioned above indicates that even shorter periods of time between anesthesia and drug administration are safe. A more practical consideration dictating discontinuation of treatment is the requirement of no oral intake prior to general anesthesia.

Local anesthesia, if possible, is preferred, because no change is necessary in the patient's therapy and many potential complications from general anesthesia are avoided. Among these are worsening of Parkinsonism from stopping levo-dopa as well as the many problems that occur in any seriously disabled and immobile patient exposed to a prolonged episode of unconsciousness.

Anesthetic Management

As already indicated, the major potential hazard of levo-dopa treatment during surgery is cardiovascular in origin, resulting from beta adrenergic stimulation. The importance

of closely following blood pressure and cardiac rhythms is obvious. It also behooves the anesthetist to avoid sympathomimetic drugs with beta adrenergic stimulating properties. However, for practical purposes, very few serious arrhythmias or other cardiac problems have developed during general anesthesia in levo-dopa treated patients.

Halothane and Cyclopropane have been shown experimentally to lower the threshold for ventricular arrhythmias due to sympathomimetic agents, including dopamine.[6] Nitrous oxide or other anesthetics without such an action might be preferred. Nonetheless, both of these substances have been employed in levo-dopa treated patients without difficulty, possibly because measurable blood levels of the drug disappear in four to six hours. Propranolol should be available however, particularly if either anesthetic is to be used, although such a precaution is wise in any levo-dopa treated Parkinsonian patient having surgery. Current opinion holds that prophylactic use of propranolol is not necessary.[5]

Postoperative Care

Full doses of levo-dopa treatment should be resumed immediately, if feasible, after surgery. Failure to do so may result in markedly incapacitating and even life threatening immobility. An obvious deterrent to this course of action is post-operative nausea and vomiting which prevents oral intake. Unfortunately, there is no parenteral form of levo-dopa although the claim is made that rectal administration of punctured commercially available capsules can be employed. However, a careful study of this problem has not been done.

It has long been known that Parkinsonian patients do not tolerate prolonged bed confinement because many medical complications can develop and their tendency toward akinesia is accentuated. Consistent with the post-operative course and nature of the operative procedure, rapid mobilization and early ambulation should be employed. Blood pressure is to be checked carefully when these patients are first elevated after an operation. Parkinsonian patients, even if untreated with levo-dopa, tend to have orthostatic hypotension, which is often accentuated by the drug and may be worsened post-operatively. Major blood pressure drops may necessitate a gradual elevation to the standing position and the use of elastic stockings, salt supplementation, fludrocortisone or even reduction in the amount of levo-dopa. Phenothiazines must be scrupulously avoided under any circumstance in all Parkinsonian patients regardless of treatment since they aggravate every clinical aspect of this disease. These drugs are particularly contraindicated both before and after surgery because of their hypotensive effect and tendency to cause marked worsening of immobility.

Summary

1. Patients with Parkinsonism tend to be poor surgical risks.

2. Levo-dopa is potentially hazardous in general anesthesia because of beta adrenergic stimulating properties which may increase myocardial irritability and cause arrhythmias. The drug can also produce hypertension or hypotension.

3. The disappearance of levo-dopa from the blood in four to six hours after each dose reduces these possible dangers and therefore should not interfere in most instances with the employment of general anesthetics in the levo-dopa treated patient.

4. Levo-dopa treatment should not be interrupted if at all possible in these patients, with the drug being administered as close to surgery as possible and as soon after the operation as feasible.

5. Postoperative Parkinsonian patients should be ambulated rapidly to avoid the hazards of prolonged immobility. •

REFERENCES

[1] Goldberg, L. I., and Whitsett, T. L.: Cardiovascular Effects of Levo-dopa. Clin. Pharmacol. Ther. 12:376, 1970.
[2] McDonald, R. H., and Goldberg, L. I.: Analysis of the Cardiovascular Effects of Dopamine in the Dog. J. Pharmacol. Exp. Ther. 140:60, 1963.
[3] McNay, J. L., McDonald, R. H., and Goldberg, L. I.: Direct Renal Vasodilitation Produced by Dopamine in the Dog. Circulation Res. 16:510, 1965.
[4] Instructions to Physicans, Larodopa (levo-dopa) Tablets, Hoffman-La Roche, Inc., Nutley, New Jersey, Oct. 30, 1969.
[5] Ngai, S. H.: Levo-dopa and Surgical Anesthesia. Paper read at Third Conference on Larodopa Collaborative Studies, Roche Research Tower, Nutley, New Jersey, June 19, 1971.
[6] Katz, R. L., Lord, C. O., and Eakins, K. E.: Anesthetic-Dopamine Cardiac Arrhythmias and Their Prevention by Beta Adrenergic Blockage. J. Pharmacol. Exp. Ther. 158:40, 1967.

CALORIES / 7 oz. Serving*

Beef Broth	22	Vegetable	68
Consommé	29	Tomato	69
Chicken with Rice	43	Cream of Asparagus	70
Chicken Gumbo	48	Cream of Chicken	76
Chicken Noodle	54	Cream of Mushroom	115
Cream of Potato	58	Green Pea	116
Chicken Vegetable	60	Cream of Shrimp (Frozen)	132
Vegetable Beef	66	Bean with Bacon	133

In planning high or low calorie diets, Campbell's more than 50 different soups offer you a wide choice. And, most of Campbell's Soups contain a wide variety of ingredients that can serve as supplementary sources of many essential nutrients.

* From "Nutritive Composition of Campbell's Products" which gives values of important nutritive constituents of all Campbell's Products. For your copy, write to Campbell Soup Company, Dept.35, Camden, New Jersey 08101.

There's a soup for almost every patient and diet ...for every meal and, it's made by *Campbell*

COLORADO

Colorado's President-elect

William A. H. Rettberg, MD, a member of the faculty of the University of Colorado Medical School, was named President-elect of the Colorado Medical Society at its 101st Annual Session in Colorado Springs.

Born April 16, 1907, Dr. Rettberg is a native of Peoria, Illinois and was educated in the Illinois public schools. He attended the University of Illinois and received his M.D. Degree from the University of Colorado School of Medicine in 1935.

Dr. Rettberg has served as a member of the Board of Trustees of the Colorado Medical Society. He is Director of the Belle Bonfils Memorial Blood Bank.

He is a Fellow of the American College of Physicians, a member of the American Diabetes Association, the American Thoracic Society, the American Academy for the Advancement of Science, the Society of Nuclear Medicine, the International Society of Internal Medicine and the American Association of Blood Banks.

In 1937 he married Esther F. Ris, and they live in Denver.

Dr. Rettberg was President of the Colorado Society of Internal Medicine 1958-59 and has been Colorado Governor of the American College of Physicians for two terms.

Installation as President of the Society will occur at the 102nd Annual Session next September.

W. Grayburn Davis, MD, American Association of Medical Clinics President-elect

W. Grayburn Davis, MD, section chief of the allergy-pulmonary section of the Denver Clinic, Denver, was recently installed as president-elect of the American Association of Medical Clinics at their 22nd Annual Meeting, Sept. 15-18, Cleveland.

Dr. Davis, a graduate of Denison University and Case Western Reserve University Medical School, served as president of the Rocky Mountain Allergy Society. In addition to serving as assistant clinical professor of medicine at the University of Colorado Medical Center, Dr. Davis is the medical director of the Denver Clinic.

SECOND ANNUAL ASPEN RADIOLOGY CONFERENCE

The second annual Aspen Radiology Conference will be held March 20-24, 1972 at the Aspen Institute for Humanistic Studies, Aspen, Colorado. The Conference is designed for physicians and scientists interested in diagnostic radiology, nuclear medicine and radiation therapy and will explore the impact of clinical and technological advances on radiologic practice.

The topics for discussions will include advances in chest, gastrointestinal, genitourinary and neuroradiology involving a tri-radiological approach. Each day will survey the advances in a single radiology subdivision with independent diagnostic, nuclear medicine and therapy sessions. Brief summaries of these morning sessions will be presented to the entire conference for open discussion at the afternoon plenary sessions.

The faculty will include John Amberg, MD, Kurt Amplatz, MD, Marvin Daves, MD, Richard Greenspan, MD, Eric Milne, MD, Thomas Newton, MD, and James Youker, MD, in diagnostic radiology; Donald Blaufox, MD, A. B. Brill, MD, Donald Brown, MD, Alexander Gottshalk, MD, David Kuhl, MD, Merle Loken, MD and James Potchen, MD in nuclear medicine; Malcolm Bagshaw, MD, Luther Brady, MD, Samuel Hellman, MD, Simon Kramer, MD, Theodore Phillips, MD and Philip Rubin, MD in radiation therapy.

Further information may be obtained from Emanuel Salzman, MD, Director, Division of Radiology, Denver General Hospital, Denver, Colorado 80204.

LET'S CLEAR THE AIR!
We're planning to spend $11 million to do our share. And we won't stop trying until we succeed.
Public Service Company of Colorado
an investor-owned utility

MONTANA

Dr. McCabe Appointed to State Board of Medical Examiners

Early in September Forrest H. Anderson, Governor of Montana, announced the appointment of James J. McCabe, MD, Helena, to the Montana State Board of Medical Examiners. Doctor McCabe will succeed William F. Cashmore, MD, Helena, for a seven-year term expiring September 1, 1978. Doctor Cashmore has served as a member of the State Board of Medical Examiners and as its secretary since his appointment seven years ago.

NEVADA

Dr. Mack Elected to American Board of Neurological Surgeons

Dr. Ernest W. Mack, prominent Reno neurosurgeon and chairman of the Washoe Medical Center Board of Trustees, has been elected to the American Board of Neurological Surgeons as a member—the first Nevadan to achieve this honor. The board is the examining body for all U. S. neurosurgeons seeking certification in their specialty and is made up of 13 of the nation's most eminent neurosurgeons.

He is the author of 24 scientific papers, the most recent of which were entitled "Neurologic Injuries—The Responsibilities of the Emergency Room Physician," and, with Dr. R. J. Morelli, "Surgery of the Cervical Syndrome." Both papers appeared in the March, 1971 issue of the *Rocky Mountain Medical Journal.*

Dr. Mack has served two years as secretary of the American Medical Association's Neurosurgical Section, the largest group of neurosurgeons in the world. In 1970 he was named secretary and advisory committee member of the section coincident with its establishment as a permanent body of the AMA.

Active in a dozen medical organizations over the past 26 years, he has served as president of seven of them. They include the county and state medical societies, the Western Neurosurgical Society, the San Francisco Neurological Society, the Federation of Western Societies of Neurological Sciences, the American Association of Electromyography and Electrodiagnosis, and he was a founding member and the first president of the Reno Surgical Society. He has also served on the Board of Governors of the American College of Surgeons for three years.

Dr. Mack was first elected to the Washoe Medical Center Board of Trustees in 1948 and has served as its chairman for the past 17 years. In addition to his private practice, he is a neurosurgeon at both Washoe Medical Center and St. Mary's Hospital and is a consulting neurosurgeon for the V. A. Hospital here.

NEW MEXICO

Four Corners Health Planning Committee

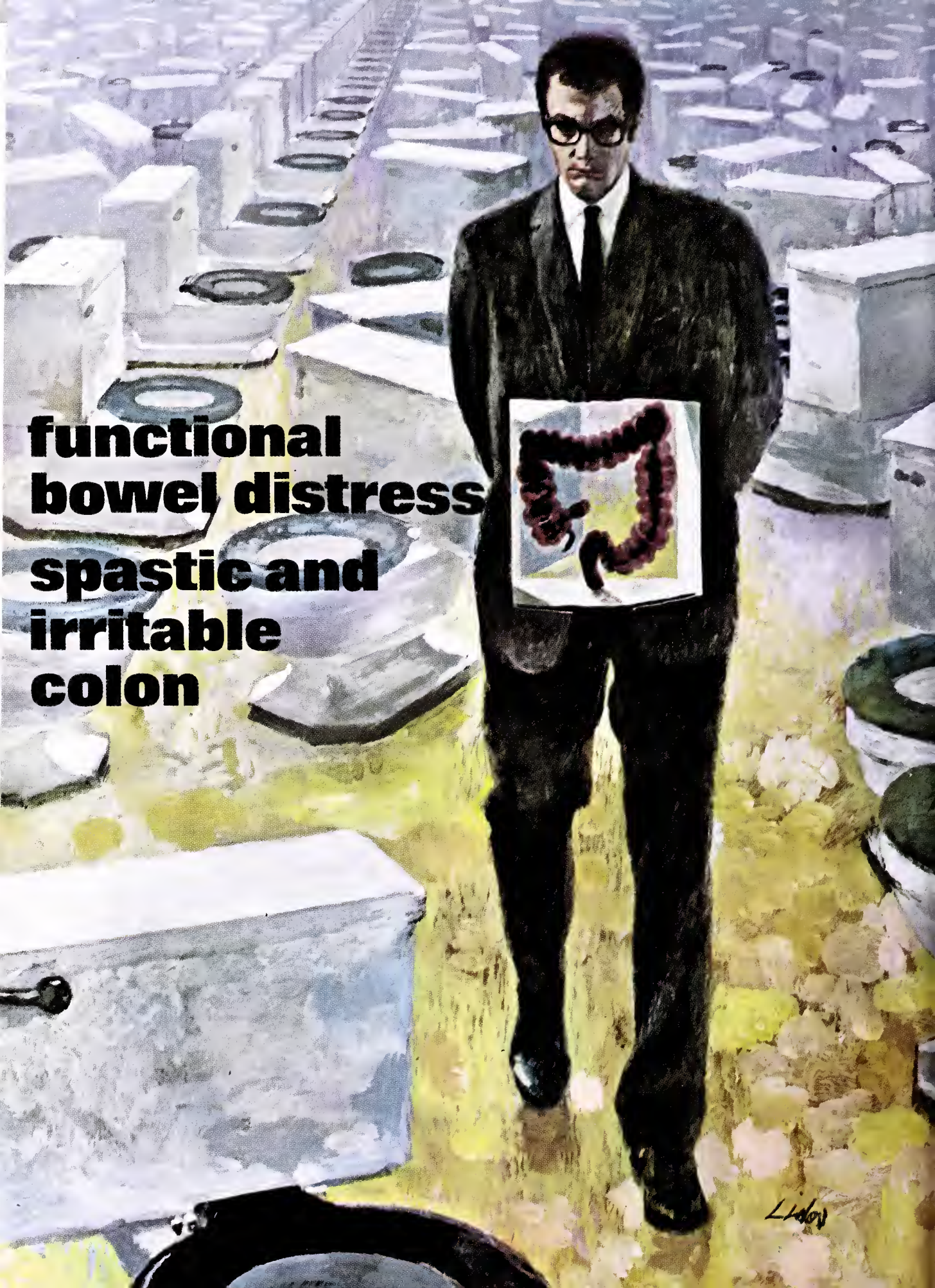
Health professionals and interested citizens from 15 counties in New Mexico, Arizona, Colorado and Utah have formed a planning committee designed to meet special health needs of the Four Corners area. The Four Corners Areawide Comprehensive Health Planning Committee has offices at the Four Corners Regional Commission headquarters in Farmington, N.M.

The committee has drawn up a resolution proposing that it become officially recognized as the Health Advisory Council for the Federally funded Four Corners Regional Commission. Such a Health Advisory Board could serve as a coordinating mechanism for RMP and CHP agencies where health problems cross state lines. The Four Corners Regional Commission will consider the resolution at its next meeting, Oct. 13, in Phoenix.

The 15 counties could also pool resources to improve the overall health care delivery system in an area characterized by large geographical expanses, sparse population, transportation difficulties, and economic dependence.

The impetus and initial financial support behind the formation of the Committee has come from interested citizens residing in the Four Corners area and from Comprehensive Health Planning agencies and Regional Medical Programs serving the four states.

Health problems to be dealt with in the area include emergency medical services, inter- and intra-state communications, preventive medical care, environmental health hazards, health manpower development and utilization, health education, patient transportation, and migrant health.


functional
bowel distress
spastic and
irritable
colon

move up to "the Robinul response"

In treating hypermotility associated with functional lower G-I disorders are you disappointed in the results you've been getting with some of the synthetics? Then *move up* to a potent antispasmodic—Robinul® Forte (2 mg. glycopyrrolate). It provides prompt, pronounced, prolonged suppression of hypermotility, making it a highly effective agent in functional bowel distress, as well as in spastic and irritable colon. Robinul Forte also exerts a more selective action on the gastrointestinal tract. If the patient has a "one tract mind" concerning his lower G-I symptoms, you can help control the anxiety and tenseness by prescribing Robinul®-PH Forte (2 mg. glycopyrrolate with 16.2 mg. phenobarbital —warning: may be habit forming).

when lower G-I symptoms demand potent synthetic antispasmodic

Robinul® 2 mg. Forte (glycopyrrolate)

ICATIONS Robinul Forte (glycopyrrolate, 2 mg.) and Robinul-PH Forte are double-strength dosage forms of glycopyrrolate. They are primarily ted for patients who are less responsive to anticholinergic therapy and for control of the more prominent symptomatology associated with episodes of gastrointestinal disorders. Emphasis should be on total management, with due consideration of the various therapeutic modalities ble, including diet, antacids, anticholinergic agents, sedatives, and attention to emotional problems. Accordingly, glycopyrrolate is recom- d in the management of gastrointestinal disorders amenable to anticholinergic therapy, such as: (1) duodenal ulcer, duodenitis, pylorospasm; stric ulcer, gastritis, esophageal hiatal hernia, hyperchlorhydria, pyrosis, aerophagia, gastroenteritis; (3) esophagitis; (4) cholecystitis, chronic atitis; (5) spastic and irritable colon, ulcerative colitis, functional bowel distress, diverticulitis, acute enteritis, diarrhea; and (6) splenic flexure me, neurogenic gastrointestinal disturbances. When these conditions are associated with psychic overlay, the formulation with phenobarbital e indicated. ■ CONTRAINDICATIONS Glaucoma, urinary bladder neck obstruction, pyloric obstruction, stenosis with significant gastric reten- rostatic hypertrophy, duodenal obstruction, cardiospasm (megaesophagus), and achalasia of the esophagus, and in the case of Robinul-PH (glycopyrrolate with phenobarbital), sensitivity to phenobarbital. ■ PRECAUTIONS Administer with caution in the presence of incipient ma. ■ SIDE EFFECTS The most frequent side effect noted during clinical trials was dry mouth. Thirty-three (3.3%) of 1,009 patients receiving 2 mg. of glycopyrrolate a day complained of dry mouth of moderate to severe degree, but only 11 discontinued treatment because of this. d vision, constipation, and urinary hesitancy have been reported infrequently. Other side effects associated with the use of anticholinergic include: tachycardia, palpitation, dilatation of the pupil, increased ocular tension, weakness, nausea, vomiting, headache, dizziness, drowsi- and rash. ■ DOSAGE The average and maximum recommended dose of Robinul Forte (glycopyrrolate, 2 mg.) or Robinul-PH Forte is one three times daily (in the morning, early afternoon, and at bedtime). To obtain optimum results, dosage should be adjusted to the individual t's response. After the more severe symptoms associated with acute conditions have subsided, the dose may be reduced to the minimum ed to maintain symptomatic relief. ■ SUPPLY Robinul Forte (glycopyrrolate, 2 mg.) is available as scored, compressed pink tablets engraved in bottles of 100 and 500. ■ Robinul-PH Forte (glycopyrrolate, 2 mg., with phenobarbital, 16.2 mg.) is available as scored, compressed blue engraved AHR/2 in bottles of 100 and 500.

A. H. Robins Company, Richmond, Va. A·H·ROBINS

OBITUARIES

Colorado

John Amesse, MD, was born May 24, 1915, in Denver, Colorado. As a lad he grew up in the community; as a young man he stayed in the same community and became a physician, and the physician stayed and became our friend and colleague. On October 6, 1971, John Amesse was fatally stricken while talking with a patient on the phone. Just like that—a short 56 years.

(On the day following the tragic death of the Amesse' son I went to their home in the hopes that I could offer some small measure of support. When I left I had to realize that Eloise and John Amesse had spent the time in comforting me.)

In 1970 the Colorado Medical Society presented Doctor Amesse the Annual Robins Award for Community Service. It was nothing short of providence that this happened: we had no idea that time was running out so fast, that the opportunity to recognize this man's service could so easily have slipped by. This was all our Society ever did for John. However, it was typical of the man that he gave us much, much more.

The record of his service to his country, to his community, and to his church has been documented many times since his death. As we reflect on this fine record it increases our pride in the fact that he was a fellow physician. In the field of medicine he was a general practitioner. Where else could he have fit so perfectly? For those who still labor to define the role of the family doctor I ask them to turn to John's record; leave off theory and accept the perfect example. Literally hundreds of former patients have lost, not only their able physician, but also a friend and counselor, the like of which they will probably not find again.

John Amesse was a man of quality. In a cynical age he was not ashamed of loyalties nor embarrassed by sentiment. He was not a subtle person: he communicated directly, not in the sometimes ambiguous terms of diplomacy, but with consistent honesty, tempered with compassion — always. His sense of justice instinctively guided him to the defense of the disadvantaged. He typified what some of us, now and then imagine we are, and what most of us would wish to be most of the time. There was a comfort in just knowing that he was around.

The shock of losing a friend in his prime is a terrible thing. It is also cruel to have to look on as time erodes the statue and washes out the colors of a once fine image. What John Amesse might have accomplished, given time, is only conjecture. What he did accomplish was more than sufficient to satisfy his God, his country, and his profession.

His impact was upon us, his contemporaries. It is for us, who may be allotted the promised three score and ten, to perpetuate his memory, not through testimony, but by actions that capture the spirit of John Amesse, the man and physician. Only in this way will we attest his worth.

John . . . it was a great privilege . . . rest in peace . . . we will all try a little harder.

* * * * *

Robert W. Collett, MD, 51, died September 25 at his home in Denver. Doctor Collett was born in Raymond, Nebraska December 2, 1919, and received his MD degree from the University of Kansas in 1944 and MS degree in Pediatrics at the University of Minnesota in 1948. He interned at St. Joseph Hospital in Tacoma, Washington and studied under a fellowship in Pediatrics at the Mayo Foundation in Rochester, Minnesota. He was married to Mary Janice McWorter in February, 1969.

Doctor Collett was on the courtesy staff of Presbyterian Hospital, St. Luke's Hospital, St. Anthony's Hospital, Mercy Hospital and on the staff of Children's Hospital and General Rose Memorial Hospital. He was Medical Director at Laradon Hall for Exceptional Children in Denver.

Doctor Collett served as a Second Lieutenant in the Medical Corps of the U.S. Army from 1942-1945 and was a Captain in the honorary reserves of the U.S. Army.

He was a member of the Rocky Mountain Pediatric Society, the American Medical Association, and Colorado and the Denver Medical Societies, and was a fellow of the American Academy of Pediatrics. He was also a member of the National Association for Retarded Children.

Surviving in addition to his widow are four sons, Robert, John, Chester and McRay, all of Englewood; a daughter, Camille of Englewood; his mother, Mrs. Marguerite Hill, Wellington, Kansas; and a sister, Mrs. Annamary Naylor, Concordia, Kansas.

Utah

James Kent Jones, MD, Cedar City, Utah, died September 1, 1971, at the age of 31. Born May 31, 1940, in Richfield, Dr. Jones was the son of Clifford J. and Ruth Jensen Jones. He was married to Rebecca Ann Anderson on July 20, 1963, in the Manti L.D.S. Temple.

A graduate of the College of Southern Utah, Doctor Jones received his MD degree in 1965 from the University of Utah. He later interned at the Virginia Mason Hospital in Seattle, Washington, and served his military obligation with the U.S. Public Health Service working with the Indians in Tanana, Alaska.

He was a general practitioner in Cedar City, and was serving as Chief of Staff of the Valley View Medical Center. A member of the Southern Utah Medical Society, he was President-elect of that organization at the time of his death. He was also a member of the Utah State and American Medical Associations.

Active in the L.D.S. Church, Doctor Jones was a counselor in the Cedar Stake Fifth Ward bishopric.

Surviving the doctor are his widow; two sons, David Kent and James Edward; two daughters, Elizabeth Ann and Judy Lynn, all of Cedar City; his parents of Monroe, Sevier County; and a brother, Ralph of Albuquerque, New Mexico.

* * * * *

Alma Nemir, MD, retired University Health Service physician, died October 2, 1971. She was 69.

Born April 21, 1902, in Omaha, Nebraska, Doctor Nemir was the daughter of Ferris and Bertha Shady Nemir. She married Leslie H. Bryer on January 20, 1939, in Salt Lake City.

Doctor Nemir received her medical degree from the University of California in 1931, and interned at San Francisco General Hospital. She later completed a pathology residency at Mt. Zion Hospital, also in San Francisco. Coming to Utah in 1935, Doctor Nemir was the first woman physician appointed to the health staff of the University of Utah. She served in the University's Student Health Service until her retirement in 1970. She had also maintained a small private practice in Salt Lake City until 1956.

Following her retirement from the University as Professor Emeritus, Doctor Nemir served a 60-day tour of duty on the S.S. Hope in Tunisia. She was the author of a textbook entitled "School Health Program," which has been used by many universities.

An active member of the Salt Lake County, Utah State, and American Medical Associations, Doctor Nemir was also affiliated with the American College Health Association. She was a past president of the Pacific Coast College Health Association, and served on two separate occasions as vice president for the American Association of Health and Physical Education.

Survivors include her husband, of Salt Lake City, and two brothers, both living in California.

* * * * *

Kenneth Hill, MD, Hunter physician and surgeon, died September 19, 1971. He was 49.

The son of John William and Sarah Ann Frisby Hill, Doctor Hill was born February 9, 1922, in Bountiful, Utah. He was married to Betty Gibbs in November 1944. She died in 1965. He was married to Shirley Bangerter in December 1969.

Doctor Hill received his medical degree from the University of Utah, later completing an internship at the St. Mark's Hospital in Salt Lake City. He commenced his medical practice in Garfield, and later served as plant physician for the American Smelting and Refining Company.

One of the original planners of the Valley West Hospital, Doctor Hill had served as its President, and, at the time of his death, was chairman of the hospital's board of directors. He began the Hunter Medical Center in 1958, where he practiced until his death.

Active in the L.D.S. Church, Doctor Hill was a member of the Hunter L.D.S. Stake. He served as a Captain in the Medical Corps of the U.S. Army during World War II. A member of the Salt Lake County, Utah State, and American Medical Associations, Doctor Hill was also affiliated with the Utah Chapter of the American Academy of General Practice. He was physician to the Cyprus High School football team, and was a member of the Granger-Hunter Community Council.

Survivors include his widow; four sons, Kenneth E., John, Paul and Jay, all of Hunter; two daughters, Mrs. John L. (Sally) Hall, Covina, California, and Laura of Hunter; three grandchildren; two brothers and one sister.

PUBLICATION PRINTING...

NEWSPAPERS • MAGAZINES
ANNUALS • QUARTERLIES
BOOKLETS • BROCHURES
REPORTS • ROSTERS • PROGRAMS
HANDBOOKS • CATALOGUES

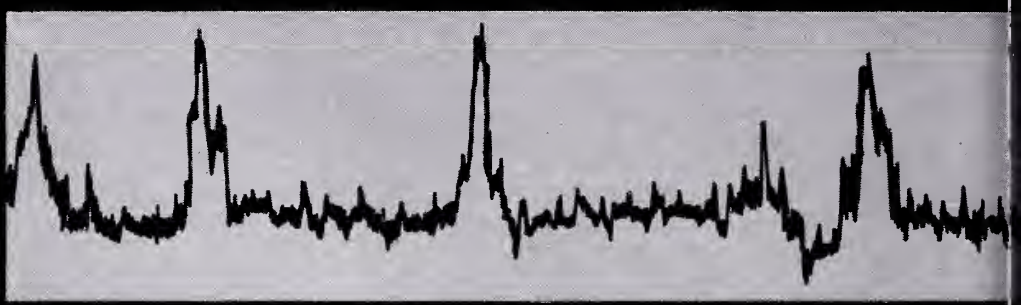
EDITORIAL ASSISTANCE • BINDING
ART DEPARTMENT • MAILING

Publishers Press, Inc. / Monitor Publications

2177 W. 7th DENVER 892-0166

An intestinal autobiography of rage, contentment and horror*

"Feeling unfairly taxed by the government (Internal Revenue Service) and not given enough attention by A.U.O. [an experimenter to whom the subject became very attached], he became overtly critical and accusatory. He shouted, raged, and threatened to quit."*



"The motility that day was quiet. This type of recording is seen regularly when he is relaxed and contented and the laboratory seems peaceful."*

He was overwhelmed by "paralyzing horror" when told he would need a partial laryngectomy for removal of an early carcinoma; "...the activity of the ileum virtually ceased for over a five-minute period...."*

Background

*Data presented here derive from a 13-year ongoing study by Henry Harrison Sadler, M.D., and Aline Underhill Orten, Ph.D., at Wayne State University. Their findings, which demonstrate a correlation between the emotional state of a human subject and the motility of an isolated segment of his ileum, were published in the April, 1968, *American Journal of Psychiatry*, volume 124, page 1375.

The subject is a 56-year-old man with a 40-cm Thiry loop of ileum created as a result of emergency surgery. A person of modest attainment and simple tastes, the subject depends on the investigators as he might his own family. His full-time job is as a "human laboratory," and throughout the 13-year period of the study, he has taken great personal pride in his own participation.

A story charged with emotion

The graphs on the facing page are intestinal motility readings on a human subject experiencing the emotions of rage, contentment and horror (see "Background" below left). This "intestinal autobiography" dramatizes the point that certain emotions correlate with specific patterns of G.I. motility.

The visceral clutch and functional G.I. disorders

The gut response to stress has been amply demonstrated in many functional G.I. disorders. Nervous diarrhea and irritable colon syndrome, for example, are disorders associated with abnormal G.I. motility. And these disorders are commonest among patients sensitive to life-stress situations productive of conflict and excessive anxiety.

Librax® calms anxiety, calms the gut

In these areas of G.I. pathology, Librax has become a mainstay of adjunctive therapy. Reason? Effective two-way calming action. Librax, by relieving excessive anxiety, not only helps calm emotional overreaction to stress, it controls intestinal hypermotility, too. Depend on Librax—the only drug that combines the well-known antianxiety action of Librium® (chlordiazepoxide HCl) and the potent, dependable antisecretory/antispasmodic action of Quarzan® (clidinium Br).

1 or 2 capsules, 3 or 4 times daily in the treatment of nervous diarrhea and irritable colon syndrome

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances, syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

In functional G.I. disorders, adjunctive Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

calms anxiety, calms the G.I. tract

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

THE WASHINGTON SCENE

A monthly news summary from the nation's Capital by the Washington Office of the AMA.

Health, Education and Welfare Secretary Elliot L. Richardson approved a proposed regulation to authorize insurance carriers to issue contracts for prepaid group medical service to persons in any state regardless of any restrictive state law.

Authority for the proposed regulation was granted by Congress last year in a law sponsored by Sen. Edward M. Kennedy (D.-Mass.) who also is the chief Congressional sponsor of organized labor's allout national health insurance proposal. Under the terms of the law, the secretary of HEW can authorize insurance carriers who provide coverage through the Federal Employee Health Benefits program to issue contracts for the group medical services.

Forty-one prime health insurance carriers presently provide coverage through FEHBP. The actual number of insurance carriers affected by the law could total in the hundreds because of reinsurance contracts between prime carriers and other insurance providers, according to a spokesman for the department's Office of Group Practice Developments.

The regulation allows the HEW secretary to authorize the insurance companies "to issue in any state contracts entitling any person as a beneficiary to receive comprehensive medical services from a group practice unit or organization" with which the company has contracted for the provision of group services.

The proposed regulation would be to override those restrictions, "enabling insurance carriers to issue contracts for prepaid group medical services to any individual in any state," an HEW announcement said.

HEW said as many as 50 million residents of the 20 states with laws restricting group practice could become eligible for group health plans.

Such plans, as described in the proposed rules, offer preventive, diagnostic and therapeutic medical services in a single organization on a prepaid basis.

"A medical group . . . shall include at least a general practitioner and representatives of each of the following medical specialties: general surgery, obstetrics, internal medicine, pediatrics and ear-nose-throat," the proposal said.

Kennedy applauded HEW's move but criticized the delay.

"The cause of the delay is no secret," he said in a statement. "For months the profitmaking commercial industry fought to obtain a larger role."

He said that while the intent of Congress prevailed, the delay shows "the virtual stranglehold the health insurance lobby has on this administration."

You Can Order

REPRINTS

of any feature or advertisement appearing in

The Rocky Mountain Medical Journal.

Orders must be placed within 15 days after date of publication. Minimum charge applies for 100 copies or less.

The cost is very reasonable.

For further information write to—

The Rocky Mountain Medical Journal

1809 East 18th Avenue

Denver, Colorado 80218

the compound analgesic that calms instead of caffeinates

In addition to pain, this patient has experienced anxiety, fear, embarrassment, anger, and frustration. It's very likely that these psychic factors actually accentuated his perception of pain. Surely the last thing he needs is an analgesic containing caffeine. A much more logical choice is Phenaphen with Codeine. It provides a quarter grain of phenobarbital to take the nervous "edge" off, so the rest of the formula can control the pain more effectively. It's no accident that the Phenaphen formulations contain a sedative rather than a stimulant. Don't you agree, Doctor, that psychic overlay is an important factor in most of the accident cases you see?

Phenaphen® with Codeine

Phenaphen with Codeine Nos. 2, 3, or 4 contains: Phenobarbital (¼ gr.), 16.2 mg. (warning: may be habit forming); Aspirin (2½ gr.), 162.0 mg.; Phenacetin (3 gr.), 194.0 mg.; Hyoscyamine sulfate, 0.031 mg.; Codeine phosphate, ¼ gr. (No. 2), ½ gr. (No. 3) or 1 gr. (No. 4) (warning: may be habit forming).

Indications: Provides relief in severer grades of pain, on low codeine dosage, with minimal possibility of side effects. Its use frequently makes unnecessary the use of addicting narcotics. *Contraindications:* Hypersensitivity to any of the components. *Precautions:* As with all phenacetin-containing products, excessive or prolonged use should be avoided. *Side effects:* Side effects are uncommon, although nausea, constipation and drowsiness may occur. *Dosage:* Phenaphen No. 2 and No. 3—1 or 2 capsules every 3 to 4 hours as needed; Phenaphen No. 4—1 capsule every 3 to 4 hours as needed. For further details see product literature.

A. H. Robins Company, Richmond, Va. A·H·ROBINS

'head clear upon arising'

For upper respiratory allergies and infections including the common cold, Dimetapp Extentabs® effectively relieve the stuffiness, drip and congestion all night and all day long on just one Extentab every 12 hours. For most patients drowsiness or overstimulation is unlikely.

prescribing information appears on next page

A·H·ROBINS

A. H. Robins Company
Richmond, Va. 23220

Dimetapp® Extentabs®

Dimetane® (brompheniramine maleate), 12 mg.; phenylephrine HCl, 15 mg.; phenylpropanolamine HCl, 15 mg.

Dimetapp Extentabs®

INDICATIONS: Dimetapp Extentabs are indicated for symptomatic relief of allergic manifestations of upper respiratory illnesses, such as the common cold, seasonal allergies, sinusitis, rhinitis, conjunctivitis and otitis. In these cases it quickly reduces inflammatory edema, nasal congestion and excessive upper respiratory secretions, thereby affording relief from nasal stuffiness and postnasal drip.
CONTRAINDICATIONS: Hypersensitivity to antihistamines of the same chemical class. Dimetapp Extentabs are contraindicated during pregnancy and in children under 12 years of age. Because of its drying and thickening effect on the lower respiratory secretions, Dimetapp is not recommended in the treatment of bronchial asthma. Also, Dimetapp Extentabs are contraindicated in concurrent MAO inhibitor therapy.
WARNINGS: *Use in children:* In infants and children particularly, antihistamines in overdosage may produce convulsions and death.
PRECAUTIONS: Administer with care to patients with cardiac or peripheral vascular diseases or hypertension. Until the patient's response has been determined, he should be cautioned against engaging in operations requiring alertness such as driving an automobile, operating machinery, etc. Patients receiving antihistamines should be warned against possible additive effects with CNS depressants such as alcohol, hypnotics, sedatives, tranquilizers, etc.
ADVERSE REACTIONS: Adverse reactions to Dimetapp Extentabs may include hypersensitivity reactions such as rash, urticaria, leukopenia, agranulocytosis and thrombocytopenia; drowsiness, lassitude, giddiness, dryness of the mucous membranes, tightness of the chest, thickening of bronchial secretions, urinary frequency and dysuria, palpitation, hypotension/hypertension, headache, faintness, dizziness, tinnitus, incoordination, visual disturbances, mydriasis, CNS-depressant and (less often) stimulant effect, anorexia, nausea, vomiting, diarrhea, constipation, and epigastric distress.
HOW SUPPLIED: Light blue Extentabs in bottles of 100 and 500.

Income Protection for Doctors

As a member of the Colorado Medical Society you can purchase up to $1,000.00 a month in disability income protection at special money-saving rates.

These benefits are TAX-FREE — not subject to any Federal Income Tax. They're yours to spend as you see fit — for your regular living expenses or for whatever other purpose you choose.

So don't take chances! Offer your family the extra income protection your Colorado Medical Society Plan can provide. Get all the facts on this great coverage by filling out and mailing the coupon below today.

Mutual of Omaha®
The Company that pays
Life Insurance Affiliate: United of Omaha
Mutual of Omaha Insurance Company
Home office: Omaha, Nebraska

Colorado Division Office
Mutual of Omaha
2nd Floor, Railway Exchange Bldg.
Denver, Colorado 80202

Please rush me full details on the Colorado Medical Society's Disability Income Protection Plan.

Address.....

Name.....

City..... State..... Zip.....

2-5-8-11-71

MEETINGS

American Cancer Society and National Cancer Institute

PLANNING FOR CANCER CENTERS
Washington Hilton Hotel, Washington, D.C.
December 9-10, 1971

For information write: Sidney L. Arje, MD, American Cancer Society, 219 East 42nd Street, New York, N.Y. 10017

PULMONARY FUNCTION IN HEALTH AND DISEASE
Louisiana State University School of Medicine
New Orleans, Louisiana
December 6-9, 1971

Tuition: physicians, $125; members of the American Thoracic Society, $100.

The four-day course is sponsored by the American Thoracic Society, the Alton Ochsner Medical Foundation, Tulane University School of Medicine, and the Louisiana State University School of Medicine in New Orleans. The Louisiana Thoracic Society, a continuing education institution accredited by the American Medical Association, is the administrative sponsor of the course.

All correspondence should be addressed to the Louisiana Thoracic Society, Suite 1504. 333 St. Charles St., New Orleans, La. 70130.

PEDIATRIC PULMONARY FUNCTION AND DISEASE
Louisiana State University School of Medicine,
New Orleans, Louisiana
December 9-11, 1971

This course is being co-sponsored by the American Thoracic Society, the National Cystic Fibrosis Research Foundation, Alton Ochsner Medical Foundation, Tulane University School of Medicine, LSU Medical School, and the Louisiana Thoracic Society. Program acceptable for 12 prescribed hours by the American Academy of General Practice.

Programs, and other information available from the Course Registrar, Miss Marlys Anderson, Louisiana Thoracic Society, Suite 1504, 333 St. Charles St., New Orleans, La. 70130.

American College of Physicians and Colorado Society of Internal Medicine Regional Meeting

Broadmoor Hotel, Colorado Springs
January 13-15, 1972

University of Miami School of Medicine Sixth Annual Workshop

TEACHING FAMILY MEDICINE
University of Miami School of Medicine,
Miami, Florida
January 2-5, 1972

The objective of the Workshop is improvement of instructional skills and program evaluation in teaching family medicine. The Workshop will be work-oriented with small groups assigned specific tasks applicable to designing new programs and techniques.

For further information write to: Lynn P. Carmichael, MD, Division of Family Medicine, University of Miami School of Medicine, Box 875—Biscayne Annex, Miami, Florida 33152.

American College of Cardiology and Santa Barbara Heart and Lung Institute

MYOCARDIAL INFARCTION
Snowmass-at-Aspen, Colorado
January 9-11, 1972

This program has been accredited by the Council on Medical Education of the American Medical Association and is acceptable for credit toward the A.M.A. Physician's Recognition Award.

For further information, contact Miss Mary Anne McInerny, Director, Department of Continuing Education Programs, American College of Cardiology, 9650 Rockville Pike, Bethesda, Md. 20014.

Radiology Symposium

FUNDAMENTALS OF MANAGEMENT FOR SUPERVISORY TECHNOLOGISTS IN RADIOLOGY
St. Mary's Hospital, Lubbock, Texas
February 17-19, 1972.

Enrollment is limited to 100 for this Symposium being offered by the Radiology Department of St. Mary of the Plains Hospital in conjunction with the Department of Business Administration at Texas Tech University.

Tuition — $50.

For brochure and further information, contact Buerk Williams, MD or Joe Vela, R.T., Symposium Coordinators, Radiology Dept., St. Mary of the Plains Hospital, Lubbock, Texas 79410.

Colorado Diabetes Association, Inc.

NINTH ANNUAL INSTITUTE ON DIABETES
Aspen Institute, Aspen, Colorado
March 15-19, 1972.

Programs available through the office of the Colorado Diabetes Association, 1375 Delaware Street, Denver, Colorado 80204.

Society for Clinical Ecology

FIFTH SEMINAR ON ECOLOGIC ILLNESS

Brown Palace Hotel, Denver, Colorado

December 3-6, 1971

The Fifth Annual Meeting of this Society will be held at the Brown Palace Hotel on December 7-8, 1971.

Information concerning these meetings may be obtained from Robert Collier, M.D., Secretary-Treasurer, 4045 Wadsworth Boulevard, Wheat Ridge, Colorado 80033.

Arizona Heart Association

FIFTEENTH ANNUAL CARDIAC SYMPOSIUM

Mountain Shadows Resort Hotel, Phoenix, Arizona

January 21-22, 1972

For information write Arizona Heart Association, 1720 E. McDowell Road, Phoenix, Arizona 85006.

American Physicians Art Association

We would like to invite our medical colleagues to become members of our national non-profit organization which is dedicated to furthering art interests of the medical profession; to broadening the physician's knowledge and appreciation of the past and present; to stimulating physician artists to produce works of art in the fields of painting, sculpture, photography, graphic arts, design and creative crafts; to holding a national annual exhibition of physicians' art works; and to stimulating regional art exhibitions of physicians' works at local, state and specialty meetings.

Our art exhibit is held annually in conjunction with the annual meeting of the American Medical Association. The APAA has a membership which extends across the entire United States, Canada and Latin America. Every state in the Union is represented through a Regional Director. It is the hope of the APAA to establish a central photographic archive of its members' art works, to be used for year-round press and magazine publicity in the physicians' home towns as well as nationally.

You do not necessarily have to be currently engaged in any art activity to become a member. We also welcome the support of anyone interested in furthering physicians' art in America, as our organization is totally supported by the members and friends of the APAA. The types of membership are:

Life Sponsor Membership	$200.00
Sponsor Membership	30.00
Regular Membership	15.00
*Associate Membership	5.00

If you are interested in becoming a member, or if you wish further information, please contact the President of APAA, A. M. Gottlieb, MD, 3801 Miranda Avenue, Palo Alto, California 94304.

(*Associate Membership is for Medical students, interns, and residents.)

CHECK YOUR LISTING

in the

1971 ISSUE OF THE

ROCKY MOUNTAIN MEDICAL DIRECTORY

IF THIS LISTING IS NOT CORRECTLY SHOWN, OR IF YOU HAVE BECOME A MEMBER OF YOUR STATE SOCIETY SINCE JANUARY, 1971, PLEASE SEND YOUR NAME, PRINCIPAL OFFICE ADDRESS (Include zip code), TELEPHONE, SPECIALTY AND TYPE OF PRACTICE.

We cannot alter our policy of including ONE OFFICE ADDRESS ONLY, so we must have your preferred listing. If practice is limited to one specialty, please indicate by asterisk (*).

It is extremely important that we have this information in the Journal office by January 3, 1972.

The Rocky Mountain Medical Journal

1809 East 18th Avenue

399-1222

Denver, Colorado 80218

Wellcome
Burroughs Wellcome Co.
Research Triangle Park
North Carolina 27709

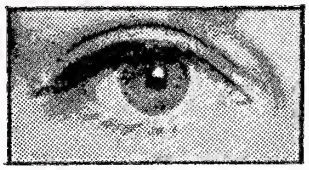
A gratifying announcement about Empirin® Compound with Codeine

You may now specify up to five refills within six months when you prescribe Empirin Compound with Codeine (unless restricted by state law).

It is significant in this era of increased regulation, that Empirin Compound with Codeine has been placed in a less restrictive category. You may now wish to consider Empirin with Codeine even more frequently for its predictable analgesia in acute or protracted pain of moderate to severe intensity.

Empirin Compound with Codeine No. 3 contains codeine phosphate* (32.4 mg.) gr. ½. No. 4 contains codeine phosphate* (64.8 mg.) gr. 1. *(Warning—may be habit-forming.) Each tablet also contains: aspirin gr. 3½, phenacetin gr. 2½, caffeine gr. ½.

ARTIFICIAL EYES



Plastic eyes and glass eyes specially made to fit the most difficult cases. An expert eye-maker is in our office at all times to give your patients the satisfaction they must have. In business since 1906. Write or phone for full details.

DENVER OPTIC COMPANY
330 University Bldg. • 16th and Champa • 825-0229
Denver, Colorado 80202

WHAT IS REAL ESTATE COUNSELING?

real estate counseling is working with you, your attorney and accountant. To find the best solutions to your property problems.

BY APPOINTMENT ONLY

PAUL S. TOLTZ
Realtor
Real Estate Counselor
601 Broadway, Suite 412 **893-3088**
Denver, Colorado

MEDICAL TRANSCRIPTION

5c per line
or $4.50 per hour
(Lower rates for high volume users)

ALL WORK IS GUARANTEED

- **Accurate**
- **Neat**
- **Prompt**
- **Typed by IBM Selectric**

Call 893-5333

PROFESSIONAL SERVICES . . . when only the best is good enough.

FRANKLIN MEDICAL CENTER
2045 Franklin Street
Denver, Colorado 80205

THE EMORY JOHN BRADY HOSPITAL

401 Southgate Road **COLORADO SPRINGS, COLORADO 80906** **MElrose 4-8828**

E. JAMES BRADY, M.D., *Medical Director*

CAMPBELL F. RICE, *Superintendent*

Francis A. O'Donnell, M.D.
Robert W. Davis, M.D.
Richard L. Conde, M.D.
Paul A. Draper, M.D.
Charles W. McClellan, M.D.
James E. Edwards, M.D.

For the care and treatment of Psychiatric disorders.
Individual and Group Psychotherapy and Somatic Therapies.
Occupational, diversional and outdoor activities.
X-ray, Clinical Laboratory and Electroencephalography.

WANT ADS

THE BRIGHTON, COLORADO AREA is growing rapidly and needs additional physicians. Internist, GP, ObGyn, Pediatrics, Orthopedics. Accredited hospital. 20 miles from Denver. Fine community for children. Contact F. C. Sage, Administrator, Brighton Community Hospital, Brighton, Colorado 80601. (303) 659-1531. 871-7-4B

INTERNIST BOARD CERTIFIED or qualified for private practice in college town Northern Colorado—salary first year with partnership later with Board certified surgeon, and Board qualified internist. Please reply to Box 971-1-6, Rocky Mountain Medical Journal, 1809 East 18th Avenue, Denver, Colorado 80218. 971-1-6

FOR SALE—Picker x-ray 200MA, fluoroscope, rotating anode tube, manual tilt table and dark room equipment, excellent condition, $1,000.00. Dr. E. R. Core, 712 South Howard, Kimball, Nebraska 69145, (308) 235-2680. 1071-1-2B

REASONABLY PRICED office equipment for sale: Sonar, Cambridge EKG, 5 Microtherms, autoclave (small), treatment tables, instrument tables and surgical instruments. Dr. E. R. Core, 712 South Howard, Kimball, Nebraska 69145, (308) 235-2680. 1071-3-2B

GENERAL PRACTITIONER WANTED to join four-man group in Greater Reno Area. Excellent remuneration including paid group insurance, malpractice insurance, retirement fund, vacation, and early partnership. Wide variety of year-round recreational facilities. Contact: Box 1071-8-2, Rocky Mountain Medical Journal, 1809 E. 18th Avenue, Denver, Colorado 80218. 1071-8-2

MEDICAL CLINIC for RENT or LEASE—Newly carpeted and decorated—Completely Air Conditioned, 1974 sq ft. of space. 4—6'x9' Rooms; 2—7'x9' Rooms; 2—9'x'9' Rooms; 1—9'x12' X-ray Room; 1—6'x3' X-ray Lab; 1—6'x6' Lab; 1—12'x18' Reception Room. Parking lot for 14-20 cars. DAVCO, 4315 W. 44th Ave.—433-7348. 1171-6-1B

COLORADO SPRINGS—One side of new building for rent, quality area. Reeeption room, business offiee, private office, three work rooms. Carpeted, air-conditioned, off street parking. Glenn Lilly—Telephone: (303) 596-4251. 1171-1-2B

CONSCIENTIOUS G.P., 49 years, recently licensed in Nevada. 25 years experience including much OB and trauma, wishes to settle permanently in Western or Central Nevada. Expect salary or guarantee commensurate to experience and ability. Will furnish any personal and professional references as required. Telephone: (714) 446-6541. 1171-2-1B

30-YEAR-OLD G.P., interested in group practice in small town, preferably west of Denver. Write or phone details to Orrie G. Clemens, M.D., 427 Berryhill Road, Harrisburg, Pennsylvania 17109. Phone: (717) 652-4108. 1171-3-1B

MEDICAL LITERATURE SEARCH SERVICES. Bibliographies, abstracts, reviews, literature searches, copies of needed articles, etc., by trained scientist-medical librarian. For information call: (303) 755-9788 or write Medical Literature Search Services, 11060 East Wesley Place, Denver, Colorado 80232. 1171-4-1B

SUBLEASE OR RENT office space (garden level) at 1755 Gilpin Street, Denver, Colorado. 300 square feet includes office, small play room, waiting room. Ideal for psychiatrist, psychologist, or therapist. Call Frank E. Bumgarner, Jr., M.D. 744-7028. 1171-5-2B

NEEDED: A doctor for Lovelock, Nevada, 92 miles east of Reno on Interstate 80. A full partnership is offered in a Medical Clinic, or if not agreeable, a subsidy will be considered. Please contact Mr. Vern Schoenfeld, Chairman, Board of Trustees, by telephone, collect, at 273-2656 or 273-2681. 1071-9-TFB

MATCHED TREATMENT ROOM SET, Hamilton, 5 pieces $250.00. Dr. E. R. Core, 712 South Howard, Kimball, Nebraska 69145, (308) 235-2680. 1071-2-2B

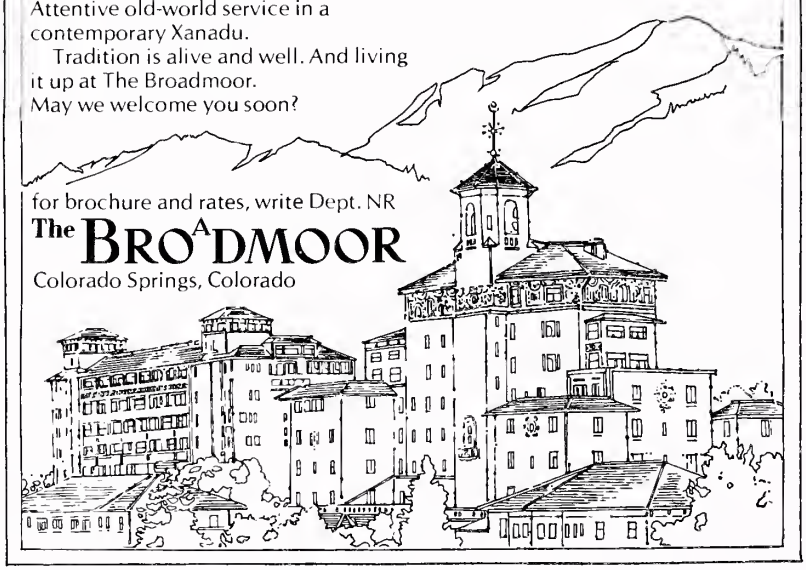
THE BROADMOOR. ONE OF THE NICEST THINGS ABOUT ITS PRESENT IS ITS PAST.

If you're attuned to patrician service and luxury, you might as well be a good sport about it.

The Broadmoor surrounds your leisure with sports. Two great 18-hole championship golf courses. Horses. Winter and water skiing. Swimming pools. Olympic-level all-season ice skating. Tennis.

And, of course, accommodations in the grand manner. Seven superb restaurants. Smart shops. Attentive old-world service in a contemporary Xanadu.

Tradition is alive and well. And living it up at The Broadmoor. May we welcome you soon?



for brochure and rates, write Dept. NR

The BROADMOOR

Colorado Springs, Colorado

INDEX TO ADVERTISERS

Arch Laboratories
Dicarbosil 3

Beecham-Massengill Pharmaceuticals
Pyopen 8-9

Broadmoor Hotel 80

Burroughs Wellcome Company
Empirin Compound with Codeine 78

Campbell Soup Company
Soups 63

Colorado College of Medical and Dental Assistants 13

Denver Optic Company 79

Emory John Brady Hospital 79

Flint Laboratories
Synthroid 18-19

Lederle Laboratories
Achrostatin V 44
Declostatin ..... Cover IV

Lilly, Eli & Company
V-Cillin, K, Pediatric 22
Darvon Compound-65 55

McNeil Laboratories
Parafon Forte 15

Medicenter of America 20

Merrell-National Laboratories
Tepanil 37
Quinamm 38

Mutual of Omaha 75

Newton Optical Company 3

Picker Medical Products 48

Practice Management Services 56

Professional Service Consultants, Inc. ..35, 79

Public Service Company of Colorado 64

Publishers Press, Inc./Monitor Publications 69

Robins, A. H. Company
Robinul Forte 66-67
Phenaphen 73
Dimetapp 74-75

Roche Laboratories
Noludar ..... Cover II, 1
Valium 10-11
Librax 70-71

Searle, G. D. & Company
Ovulen/Demulen ..... 82, Cover III

Stuart Pharmaceuticals, Div. of Atlas Chemical Industries, Inc.
Mylanta 16

Toltz, Paul S. 79

Upjohn Company
Trobicin 4-7
E-Mycin 21

Wallace Pharmaceuticals
Miltown 12

Western Scientific Assembly 17

U.S. POSTAL SERVICE
STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION
(Act of August 12, 1970: Section 3685, Title 39, United States Code)

SEE INSTRUCTIONS ON PAGE 2 (REVERSE)

1. TITLE OF PUBLICATION: Rocky Mountain Medical Journal
2. DATE OF FILING: Sept. 24, 1971
3. FREQUENCY OF ISSUE: Monthly
4. LOCATION OF KNOWN OFFICE OF PUBLICATION *(Street, city, county, state, ZIP code) (Not printers)*: 1809 E. 18th Avenue, Denver, Colorado 80218
5. LOCATION OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS *(Not printers)*: 1809 E. 18th Avenue, Denver, Colorado 80218
6. NAMES AND ADDRESSES OF PUBLISHER, EDITOR, AND MANAGING EDITOR

PUBLISHER *(Name and address)*: Colorado Medical Society, 1809 E. 18th Avenue, Denver, Colorado 80218

EDITOR *(Name and address)*: Douglas W. Macomber, M.D., 1800 High Street, Denver, Colorado 80218

MANAGER EDITOR *(Name and address)*: Donald G. Derry, 1809 E. 18th Avenue, Denver, Colorado 80218

7. OWNER *(If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given.)*

NAME	ADDRESS
Colorado Medical Society	1809 E. 18th Avenue, Denver, Colorado 80218

8. KNOWN BONDHOLDERS, MORTGAGEES, AND OTHER SECURITY HOLDERS OWNING OR HOLDING 1 PERCENT OR MORE OF TOTAL AMOUNT OF BONDS, MORTGAGES OR OTHER SECURITIES *(If there are none, so state)*

NAME	ADDRESS

9. FOR OPTIONAL COMPLETION BY PUBLISHERS MAILING AT THE REGULAR RATES (Section 132.121, Postal Service Manual)

39 U. S. C. 3626 provides in pertinent part: No person who would have been entitled to mail matter under former section 4359 of this title shall mail such matter at the rates provided under this subsection unless he files annually with the Postal Service a written request for permission to mail matter at such rates.

In accordance with the provisions of this statute, I hereby request permission to mail the publication named in Item 1 at the reduced postage rates presently authorized by 39 U. S. C. 3626.

(Signature and title of editor, publisher, business manager, or owner)

10. FOR COMPLETION BY NONPROFIT ORGANIZATIONS AUTHORIZED TO MAIL AT SPECIAL RATES *(Section 132.122, Postal Manual)*

(Check one)

The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes: ☒ Have not changed during preceding 12 months ☐ Have changed during preceding 12 months *(If changed, publisher must submit explanation of change with this statement.)*

11. EXTENT AND NATURE OF CIRCULATION	AVERAGE NO. COPIES EACH ISSUE DURING PRECEDING 12 MONTHS	ACTUAL NUMBER OF COPIES OF SINGLE ISSUE PUBLISHED NEAREST TO FILING DATE
		Sept. 1971
A. TOTAL NO. COPIES PRINTED *(Net Press Run)*	6260	6250
B. PAID CIRCULATION 1. SALES THROUGH DEALERS AND CARRIERS, STREET VENDORS AND COUNTER SALES	None	None
2. MAIL SUBSCRIPTIONS	5757	5796
C. TOTAL PAID CIRCULATION	5757	5796
D. FREE DISTRIBUTION BY MAIL, CARRIER OR OTHER MEANS 1. SAMPLES, COMPLIMENTARY, AND OTHER FREE COPIES	441	427
2. COPIES DISTRIBUTED TO NEWS AGENTS, BUT NOT SOLD	None	None
E. TOTAL DISTRIBUTION *(Sum of C and D)*	6200	6223
F. OFFICE USE, LEFT-OVER, UNACCOUNTED, SPOILED AFTER PRINTING	60	27
G. TOTAL *(Sum of E & F—should equal net press run shown in A)*	6260	6250

I certify that the statements made by me above are correct and complete. *(Signature of editor, publisher, business manager, or owner)*

Donald G. Derry
Managing Editor

PS Form 3526 June 1971

The History of Birth Control

After a 4,000-year search, have women finally found freedom?

Abortion and infanticide have, throughout history, been the final and desperate resort of women who were unable to control their fertility, but for almost 4,000 years they have sought ways to prevent conception.

In ancient Egypt they used pessaries of crocodile dung or tried to clog the motile sperm with honey and a gumlike substance. The women of Islam used tampons of pomegranate pulp and rock salt. In Japan they burned little balls of "burning grass" on the *mons veneris* or, more practically, tried to cover the mouth of the uterus with disks of oiled bamboo tissue paper. In the 18th Century in France upper-class women rediscovered the vaginal sponge, a device mentioned in sources as old as the Talmud.

It may seem now that such advances as oral contraception and the IUD have freed women from this often fruitless search and consequent suffering, but there are millions of women in the United States and elsewhere who have less knowledge of, and less recourse to, contraception than Egyptian women of the Twelfth Dynasty. Nothing is more urgent to all of us than to bring them help. We cannot long support the ecologic pressures of an additional 70 million Earth inhabitants each year.

Library
College of Physicians
19 South 22nd Street
Philadelphia, Pennsylvania 19103

BEST WISHES

FOR A MERRY CHRISTMAS

AND A

HAPPY NEW YEAR

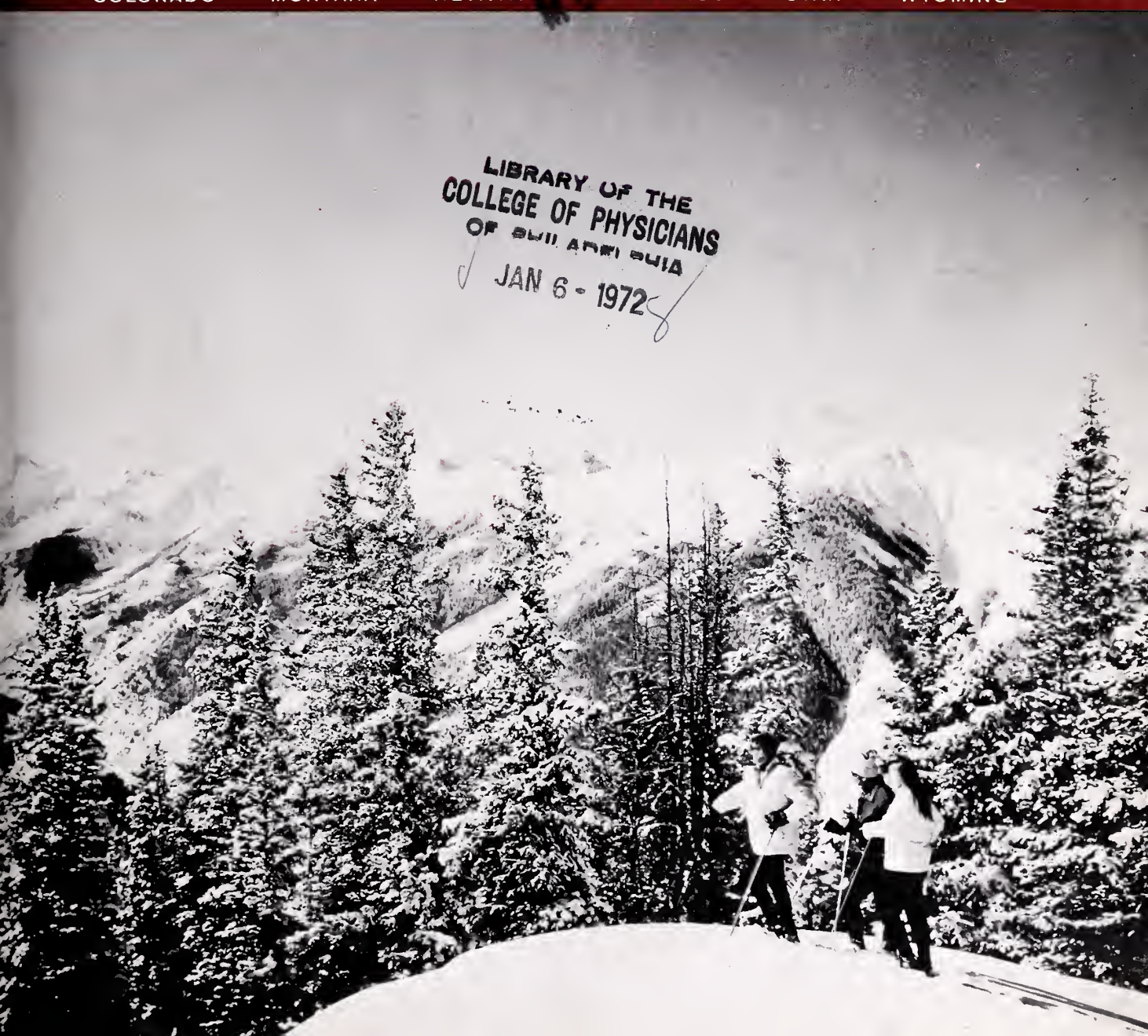
Rocky Mountain Medical Journal

December 1971

VOLUME 68 • NUMBER 12

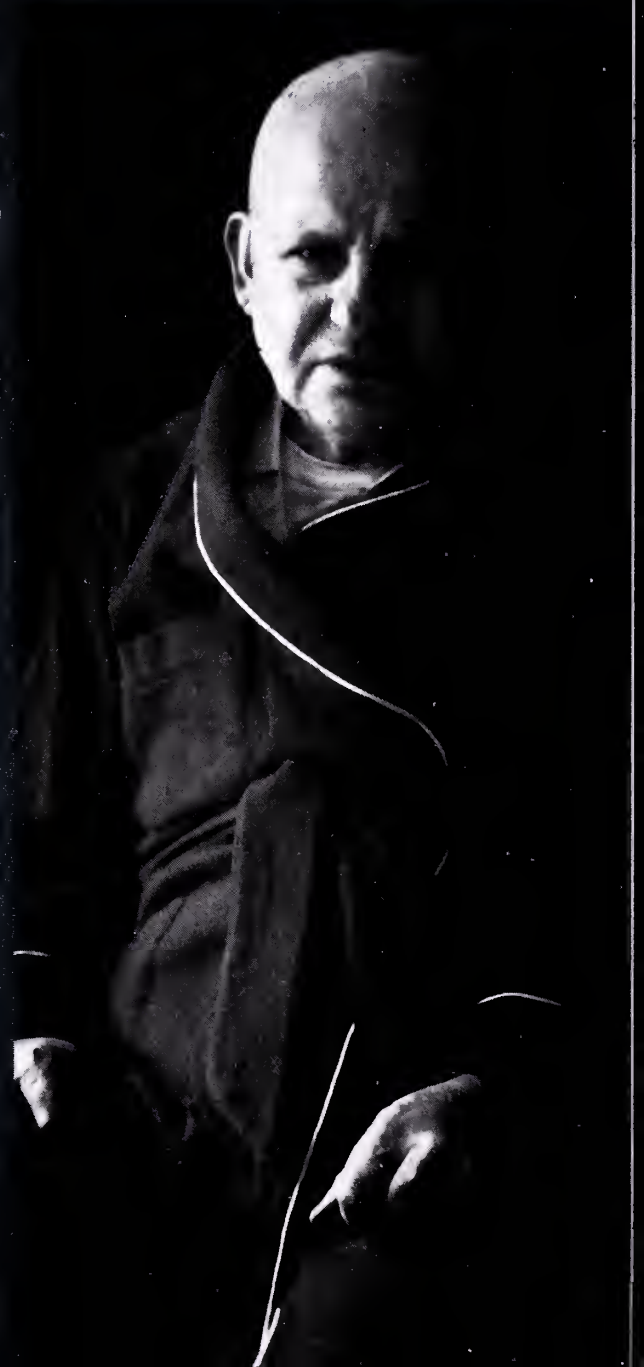
COLORADO • MONTANA • NEVADA • NEW MEXICO • UTAH • WYOMING

LIBRARY OF THE
COLLEGE OF PHYSICIANS
OF PHILADELPHIA
JAN 6 - 1972



This is a "sleep cripple"

The geriatric insomniac



Profile of insomnia

Wide-eyed in the darkness, he feels the sense of loss, the loneliness and helplessness that can so often threaten the aged.

Beset by vague aches and pains, fearful of disability, sleep evades him and the night seems endless. Added to his other problems... he has become a "sleep cripple."

The stress resulting from insomnia in the geriatric patient can increase the difficulties of the elderly, and intensify somatic complaints. Allowed to continue, such insomnia may even help prompt the appearance of new symptoms.

When insomnia adds a new dimension to geriatric problems, Noludar 300 can be an effective countermeasure, whether sleep is delayed in onset, broken, or marred by early awakening. A nonbarbiturate, Noludar 300 usually works within 45 minutes, inducing sleep that can last 5 to 8 hours. Paradoxical excitation is rare—an important advantage in the geriatric patient. Drug "hang-over" or morning-after grogginess is generally avoided. Supplied in 300-mg capsules; also available in 200-mg and 50-mg tablets.

Before prescribing, please consult complete product information, a summary of which follows:

INDICATION: Relief of insomnia of varied etiology.

CONTRAINDICATIONS: Patients with known hypersensitivity to the drug.

WARNINGS: Caution patients about combined effects with alcohol and other CNS depressants. Caution against hazardous occupations requiring complete mental alertness, such as operating machinery or driving a motor vehicle shortly after ingesting the drug.

Physical and Psychological Dependence: Physical and psychological dependence rarely reported. If withdrawal symptoms do occur they may resemble those associated with withdrawal of barbiturates and should be treated in the same fashion. Use caution in administering to individuals known to be addiction-prone or those whose history suggests they may increase the dosage on their own initiative. Repeat prescriptions should be under adequate medical supervision.

Usage in Pregnancy: Weigh potential benefits in pregnancy, during lactation, or in women of childbearing age against possible hazards to mother and child.

PRECAUTIONS: If sleeplessness is pain-related, an analgesic should also be prescribed. Perform periodic blood counts if used repeatedly or over prolonged periods. Total daily intake should not exceed 400 mg, as greater amounts do not significantly increase hypnotic benefits.

ADVERSE REACTIONS: At recommended dosages, there have been rare occurrences of morning drowsiness, dizziness, mild to moderate gastric upset (including diarrhea, esophagitis, nausea and vomiting), headache, paradoxical excitation and skin rash. There have been a very few isolated reports of neutropenia and thrombocytopenia; however, the evidence does not establish that these reactions are related to the drug.

Noludar® 300
(methyprylon)

one capsule for the rest of the night

ROCHE

ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, New Jersey 07110

ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

DECEMBER 1971

Volume 68, Number 12

Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222 (area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204

Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

Address all manuscripts, organization and other news items relating to editorial content to appropriate state editor, see below.

Editorials

27 SOMETHING BETTER THAN THE AMA?

28 VENEREAL DISEASE EDUCATION PROGRAM

Articles

29 ASCENDING AORTIC ANEURYSM — *Jean-Georges Poucel, MD, and W. Gerald Rainer, MD, Denver, Colorado*

32 IATROGENIC PULMONARY EDEMA — *V. Alton Dohner, MD, Denver, Colorado*

41 POSTDIALYSIS CONVULSIONS — *Robert Whang, MD, Donald Draney, MD, and Michael Ryan, MD, Albuquerque, New Mexico*

43 HEARING LOSS CAUSED BY PRENATAL RUBELLA — *J. Albert Browder, MD, Albuquerque, New Mexico*

Organization

49 MONTANA

Features

10 PUBLICATION RULES AND SUGGESTIONS TO AUTHORS

11 WASHINGTON SCENE

21 MEETINGS

37 POTPOURRI—*Andrew M. Babey, MD, Las Cruces, New Mexico*

39 WHAT'S THE RHYTHM?—*Alan E. Lindsay, MD, Salt Lake City, Utah*

50 MEDICAL SCHOOL NOTES

54 OBITUARIES

57 OFFICERS PAGE

58 WANT ADS

59 CUMULATIVE INDEX, VOL. 68, 1971

65 INDEX TO ADVERTISERS

OUR COVER PHOTO

The world's finest skiing is just a few hours from almost any point in the nation. Most Colorado winter recreation areas are easily reached by public transportation, as well as by car, over modern, paved all-weather highways. Colorado's high mountain valleys provide a unique blend of light, dry powder snow—ideal skiing for beginner to expert.

EDITORIAL BOARD

Colorado: Douglas W. Macomber, M.D., Scientific Editor, 1800 High St., Denver (Chairman of the Board); Carl H. McLauthlin, M.D., Assistant Scientific Editor, 510 Republic Bldg., Denver.

Montana: Gerald A. Diettert, M.D., Scientific Editor, 501 W. Broadway, P. O. Box 1307, Missoula, Montana 59801; L. Russell Hegland, Associate Editor, 1236 North 28th Street, Billings.

Nevada: Harry J. McKinnon, M.D., Scientific Editor, 3196 Maryland Pkwy. S., Las Vegas; Wesley W. Hall, M.D., Assistant Scientific Editor, 607 N. Arlington Ave., Reno; Nelson B. Neff, Associate Editor, 3660 Baker Lane, Reno.

New Mexico: Marcus J. Smith, M.D., Scientific Editor, Coronado Bldg., Santa Fe; William S. Curran, M.D., Assistant Scientific Editor, 920 Stanford NE, Albuquerque; Ralph R. Marshall, Associate Editor, 3010 Monte Vista Blvd., NE, Albuquerque.

Utah: Alan E. Lindsay, M.D., Scientific Editor, 699 East South Temple, Salt Lake City; Hoy W. Brewster, Associate Editor, 42 South Fifth East Street, Salt Lake City.

Wyoming: Francis A. Barrett, M.D., Scientific Editor, 1616 E. 19th St., Cheyenne; Robert Smith, Associate Editor, P. O. Box 1387, Cheyenne.

Donald G. Derry, Managing Editor

Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations: It is the Official Journal of the Rocky Mountain Medical Conference and those medical societies who are represented on the Editorial Board listed above.

Advertising: National representative: State Journals West, 693 Sutter Street, San Francisco, California 94102.
Subscription: $7.00 per year in advance, postpaid in the United States and its possessions; single copy 60c plus postage. Subscription is included in medical society dues of sponsoring state medical organizations.

Copyright: This Journal is copyright, 1971, by the Colorado Medical Society. Requests for permission to reproduce anything from the columns of this Journal should be addressed to the Journal Office.

Second class postage paid at Denver, Colorado

Picture of low back pain

treated with Parafon Forte® TABLETS

Paraflex® (chlorzoxazone)* 250 mg.
Tylenol® (acetaminophen) 300 mg.

Parafon Forte tablets help to relieve pain, restore mobility... stop pain-spasm feedback

Here is why. PARAFON FORTE provides:

a nonsalicylate analgesic equal to aspirin for relief of pain,[1,2] yet unlikely to cause the gastric irritation[2,3] or increased bleeding time[4] associated with aspirin therapy.

and a skeletal muscle relaxant shown in extensive clinical studies to be useful in a variety of low back disorders[5-7] ...but which is not an antihistamine or tranquilizer derivative and is unlikely to produce a tranquilizing or sedative effect.[8]

Prescribe PARAFON FORTE for effective spasmolysis and analgesia in acute sprains, strains and myalgias of the lower back, including acute exacerbations of chronic conditions. Your patients will appreciate the restored comfort and freedom of movement it usually provides.

McNEIL LABORATORIES, INC., FT. WASHINGTON, PA. 19034

McNEIL

Contraindications: Sensitivity to either component. ***Warnings:*** *Usage in Pregnancy*—Use in woman of child-bearing potential only when potential benefits outweigh possible risks. ***Precautions:*** Exercise caution in patients with known allergies or history of drug allergies. If a sensitivity reaction or signs or symptoms suggestive of liver dysfunction are observed, the drug should be stopped. ***Adverse Reactions:*** Occasionally, drowsiness, dizziness, lightheadedness, malaise, overstimulation or gastrointestinal disturbances may be noted; rarely, allergic-type skin rashes, petechiae, ecchymoses, angioneurotic edema or anaphylactic reactions. In rare instances, *Paraflex* (chlorzoxazone) may possibly have been associated with gastrointestinal bleeding. While *Paraflex* (chlorzoxazone) and chlorzoxazone-containing products have been suspected as being the cause of hepatic toxicity in approximately eighteen patients, it was not possible to state that the dysfunction was or was not drug induced. ***Usual Adult Dosage:*** Two tablets q.i.d. ***Supplied:*** Scored, light green tablets, imprinted "McNEIL" —bottles of 100.

Referenees: **1.** Batterman, R. C., and Grossman, A. J.: Fed. Proc. *14*:316, 1955. **2.** Goodman, L. S., and Gilman, A., ed.: The Pharmacological Basis of Therapeutics, ed. 4, New York, The Macmillan Company, 1970. **3.** Vickers, F. N.: Gastroint. Endosc. *14*:94, 1967. **4.** Mielke, C. H., Jr., and Britten, A. F. H.: New Engl. J. Med. *282*:1270, 1970 (Corresp.). **5.** Kestler, O. C., and Gyurik, J.: Industr. Med. Surg. *21*:372, 1962. **6.** Forster, S., et al.: Amer. J. Orthop. *2*:285, 1960. **7.** Data on file, McNeil Laboratories, Inc. **8.** Friend, D. G.: Clin. Pharmacol. Ther. *5*:871, 1964.

*U.S. PATENT NO. 2,895,877

T_4 IS THE PREDICTABLE HORMONE BECAUSE IT LOVES PROTEIN.

SYNTHROID® (sodium levothyroxine) is pure synthetic T_4, the major circulating thyroid hormone. It is reliable to use because of its affinity for protein-binding sites in the blood. T_3 is more fickle. Sometimes it binds. Sometimes it doesn't. T_4 more *predictably* binds to protein.

Synthroid®
(sodium levothyroxine)

ALL THYROID-FUNCTION TESTS ARE USEFUL IN MONITORING SYNTHROID THERAPY.

No calculations are needed, test interpretation is simple.

Any of the commonly used T_4 thyroid function tests (P.B.I., T_4 By Column, Murphy-Pattee, Free Thyroxine) are useful in monitoring patients on T_4 because they *all* measure T_4. Patients on SYNTHROID are thereby easy to monitor because their results will fall within predictable, elevated test ranges. Of course, clinical assessment is the best criterion of the thyroid status of the drug-treated patient.

TWO GOOD REASONS WHY THE ROAD TO NORMALIZED THYROID STATUS IS SO SMOOTH FOR THE SYNTHROID PATIENT.

(1) The onset of action of T_4 is gradual. It has a long in vivo "half-life" of over six days. (Occasional missed doses or accidental double-doses are of less concern because of this factor)[1]; (2) since SYNTHROID contains only T_4, the potential for metabolic surges traceable to more potent iodides (T_3) is eliminated.

1. Latiolais, C. J., and Berry, C. C.: Misuse of Prescription Medications by Outpatients, *Drug Intelligence & Clin. Pharm.* 3:270-7, 1969.

TEST	HYPOTHYROID	SYNTHROID THERAPEUTIC NORMAL
P.B.I.	Less than 4 mcg %	6-10 mcg %
T_4 By Column	Less than 3 mcg %	7-9 mcg %
T_3 (Resin)	Less than 25%	27-35%
T_3 (Red Cell)	Less than 11%	11.5-18%
Free Thyroxine	Less than 0.7 nanograms %	0.7-2.5 nanograms %
Murphy-Pattee	Less than 2.9 mcg %	4-11 mcg %

Choose the Smooth Road ...to thyroid replacement therapy

WHY DOES SYNTHROID COST LESS THAN SYNTHETIC DRUGS CONTAINING T_3?

Very simple. T_3 costs more to make synthetically than does T_4. So it is economically necessary for a synthetic thyroid medication containing T_3 to cost more than one containing T_4 alone. Synthetic combinations cost patients nearly 50% more than SYNTHROID[3] because the T_3 costs more to start with; also there is the additional expense of formulating a tablet containing two active ingredients.

3. American Druggist BLUEBOOK, March, 1971.

KNOWLEDGE OF THE '70's CHALLENGES CUSTOMS CONCERNING DESICCATED THYROID DRUGS.

In the past, desiccated thyroid produced from animal glands was considered "good, and cheap." We now know that improved products are available and the price difference has narrowed to the point of being inconsequential. (SYNTHROID, for instance, costs patients about a penny a day more than brands of desiccated thyroid.)

What does this additional $3.65 a year buy the patient? Quite a bit in terms of quality, reliability and service.

SWITCHING PATIENTS TO SYNTHROID IS EASY.

Switching present patients to SYNTHROID (or starting new ones) is a simple matter. SYNTHROID is available in the widest range of dosage strengths of any thyroid drug. Seven scored, color-coded tablet strengths are available plus a lyophilized injectable form for emergency or postoperative uses.

RESPONSE, RELIABILITY, SERVICE—COMPARISON OF FIVE PARAMETERS

PARAMETERS	DESICCATED THYROID U.S.P.	SYNTHROID® (sodium levothyroxine)
SOURCE OF HORMONE	Animal glands (swine, sheep, cows). Hormone content of glands and ratio of T_3-T_4 varies by type of animal, season in which gland is harvested, and diet of animal.[1,2,3,4,5]	Synthetically derived pure crystalline hormone. Because no animal protein is present, no objectionable odor occurs upon aging.
GENERAL ASSAY TECHNIQUE	"Its major disadvantage is inadequate standardization of hormonal content."[8]	Unlike desiccated thyroid U.S.P., thyroxine does not require biologic standardization to establish its potency.[2,6] Crystalline T_4 is used. Purity is verified by paper chromatography. Content of tablets is standardized by weight.
CLINICAL RESPONSE	"T_3 and T_4 ratio varies according to gland source. Fluctuations in response can occur. Potency can vary."[3]	"Sodium levothyroxine has been extensively used with satisfaction and is widely held to be superior to (desiccated) thyroid."[7] "There are well documented examples of patients who failed to respond satisfactorily to desiccated thyroid but subsequently responded to (sodium-l) thyroxine."[4]
PREDICTABILITY	Failure of thyroid U.S.P. treated patients to show clinical improvement and/or lack of correlation in clinical findings to thyroid function test results has been frequently discussed in the literature.[8,9,10,11,12,13,14,15,16] Regardless of which factor or factors accounts for this phenomenon the fact remains that discrepancies do occur.	Test results predictably elevated. ". . . oral potency of this material is attested to by a uniformly good clinical response corroborated by a prompt and sustained increase in the serum PBI levels."[16]

1. Mangieri, C. N. and Lund, M. H.: Potency of United States Pharmacopeia desiccated thyroid tablets as determined by the antigoitrogenic assay in rats, J. Clin. Endocrinol. Metab., *30*:102-4, 1970.
2. Lavietes, P. H. and Epstein, F. H.: Thyroid therapy of myxedema: a comparison of various agents with a note on the composition of thyroid secretion in man, Ann. Intern. Med., *60*:79-87, 1964.
3. Armour Pharmaceutical Company—discussing Armour Thyroid, PROLOID, other generics. Literature No. 21329—274—YZ—1—IM 2/71.
4. Abelson, D. M.: Hypothyroidism, Med. Sci., *10*:442-8, 1961.
5. McGregor, A. G.: Why does anybody use thyroid B. P.?, Lancet, *1*: 329-32, 1961.
6. Hart, F. D. and Maclagen, N. F.: Oral thyroxine in treatment of myxedema, Brit. Med. J., *1*:512-8, 1950.
7. Goodman, L. S. and Gilman, A.: The Pharmacological Basis of Therapeutics, 4th Ed. p. 1479, New York: Macmillan, 1970.
8. Harrison, T. R., et al.: Principles of Internal Medicine, 6th ed. p. 456. Philadelphia: Blakiston, 1970.
9. Braverman, L. E. and Ingbar, S. H.: Anomalous effects of certain preparations of desiccated thyroid on serum protein-bound iodine, New Eng. J. Med., *270*:439-42, 1964.
10. Green, W. L.: Guidelines for the treatment of myxedema, Med. Clin. N. Amer., *52*:432-50, 1968.
11. Dowling, J. T.: Hypothyroidism in Current Therapy, Conn. H. F., ed. pp. 345-7. Philadelphia: Saunders, 1964.
12. Dunn. J. T.: Excessive dose of thyroid medication in hypothyroidism, J. Am. Med. Assn., *216*:152, 1971.
13. Runyan, J. W.: Hypothyroidism and myxedema, J. Tenn. State Med. Assn., *56*:391-4, 1963.
14. Albright, E. C.: Use and abuse of thyroid hormones, comments on treatment, Marquette University, Milwaukee, Wisc.
15. Catz, B.: Ginsburg, E. and Salenger, S.: Clinically inactive thyroid U.S.P.: a preliminary report, New Eng. J. Med., *266*:136-7, 1962.
16. Bartuska, D. G., et al.: Desiccated thyroid U.S.P. or sodium l-thyroxine?, J. Amer. Med. Women's Assn., *21*:137-9, 1966.

PATIENTS CAN BE SUCCESSFULLY MAINTAINED ON A DRUG CONTAINING THYROXINE ALONE.

Thyroxine (T_4) is, as you know, the major circulating hormone produced by the thyroid gland. T_3 is also produced, in smaller amounts, and is active at the cellular level. For years it has been a working hypothesis among endocrinologists that T_4 is converted by the body to T_3. In 1970 this process, called "deiodination," was demonstrated by Sterling and Braverman[2]. T_4 does convert to T_3, though the precise quantities are still being studied.

The conversion has been clinically demonstrated during the administration of T_4 to athyrotic patients. Their thyroid status is normalized on SYNTHROID alone, yet the presence of T_3 in these patients has been clearly shown.

CONSIDERATE LONG-TERM THERAPY FOR THE PATIENT.

Predictable patient response, of course, is more important than price. You do get complete clinical response with the single-entity synthetic, SYNTHROID. And, at a reasonable cost to the patient. In some short term situations, T_3 drugs can be useful but, in long term therapy, the smooth road provided by SYNTHROID may be the better route.

SYNTHROID, with its smooth road to complete thyroid replacement therapy, has been selected for more patients in the United States and Canada than any other brand of thyroid medication.

2. Braverman, L. E., Ingbar, S. H., and Sterling, K.: Conversion of Thyroxine (T4) to Triiodothyronine (T3) in Athyreotic Human Subjects, *J. Clin. Invest.* 49:855-64, 1970.

AS WITH ANY THYROID PREPARATION, CAUTIOUS OBSERVATION OF THE PATIENT DURING THE BEGINNING OF THERAPY WILL ALERT THE PHYSICIAN TO ANY UNTOWARD EFFECTS.

Side effects, when they do occur, are related to excessive dosage. Caution should be exercised in administering the drug to patients with cardiovascular disease. Read the accompanying prescribing information for additional data or write Flint Laboratories.

Choose the Smooth Road ...to thyroid replacement therapy

0.05 mg. 0.1 mg. 0.15 mg. 0.2 mg.

FREE TAB-MINDER medication dispensers—color-coded in 4 dosage strengths—get patients off to a good start and encourage regular habit patterns. Contain free 4-weeks' supply of SYNTHROID, and are reusable for maintenance dosage.

APPROXIMATE DOSAGE EQUIVALENTS*

CYTOMEL (Sodium liothyronine) Synthetic T_3	EUTHROID** (Liotrix) Synthetic T_3-T_4	THYROLAR*** (Liotrix) Synthetic T_3-T_4	Animal Gland: Desiccated (Thyroid, USP) Cow, sheep or hog thyroid	Animal Gland: PROLOID (thyroglobulin) Frozen hog thyroid	SYNTHROID (Sodium levothyroxine) Synthetic T_4
Unscored 5 mcg.	N.A.	N.A.	unscored ¼ gr.	¼ gr.	0.025 mg.
N.A.	½	½	unscored ½ gr.	½ gr.	0.05 mg.
25 mcg.	1	1	unscored 1 gr.	1 gr.	0.1 mg.
N.A.	N.A.	N.A.	N.A.	1½ gr.	0.15 mg.
50 mcg.	2	2	unscored 2 gr.	2 gr.	0.2 mg.
N.A.	3	3	unscored 3 gr.	3 gr.	0.3 mg.
N.A.	N.A.	N.A.	unscored 5 gr.	5 gr.	0.5 mg.
N.A.	N.A.	N.A.	N.A.	N.A.	Injectable 500 mcg.

N.A.= Not Available Commercially

*Equivalents shown are chemical, and do not take into consideration individual patient variables. Clinical effect is approximate and should be monitored when converting a patient to SYNTHROID. This is particularly important in patients previously on desiccated thyroid. In these patients, lower doses of SYNTHROID may produce the same metabolic effect.

**Euthroid (#1 tablet) contains 60 mcg. of T_4 and 15 mcg. of T_3.

***Thyrolar (#1 tablet) contains 50 mcg. of T_4 and 12.5 mcg. of T_3.

Synthroid®
(sodium levothyroxine)

Indications: SYNTHROID (sodium levothyroxine) is specific replacement therapy for diminished or absent thyroid function resulting from primary or secondary atrophy of the gland, congenital defect, surgery, excessive radiation, or antithyroid drugs. Indications for SYNTHROID (sodium levothyroxine) **Tablets** include myxedema, hypothyroidism without myxedema, hypothyroidism in pregnancy, pediatric and geriatric hypothyroidism, hypopituitary hypothyroidism, simple (nontoxic) goiter, and reproductive disorders associated with hypothyroidism. SYNTHROID (sodium levothyroxine) **for Injection** is indicated for intravenous use in myxedematous coma and other thyroid dysfunctions where rapid replacement of the hormone is required. The injection is also indicated for intramuscular use in cases where the oral route is suspect or contraindicated due to existing conditions or to absorption defects, and when a rapid onset of effect is not desired.

Precautions: As with other thyroid preparations, an overdosage may cause diarrhea or cramps, nervousness, tremors, tachycardia, vomiting and continued weight loss. These effects may begin after four or five days or may not become apparent for one to three weeks. Patients receiving the drug should be observed closely for signs of thyrotoxicosis. If indications of overdosage appear, discontinue medication for 2-6 days, then resume at a lower dosage level. In patients with diabetes mellitus, careful observations should be made for changes in insulin or other antidiabetic drug dosage requirements. If hypothyroidism is accompanied by adrenal insufficiency, as Addison's Disease (chronic subcortical insufficiency), Simmonds's Disease (panhypopituitarism) or Cushing's syndrome (hyperadrenalism), these dysfunctions must be corrected prior to and during SYNTHROID (sodium levothyroxine) administration. The drug should be administered with caution to patients with cardiovascular disease; development of chest pains or other aggravations of cardiovascular disease requires a reduction in dosage.

Contraindications: Thyrotoxicosis, acute myocardial infarction. **Side effects:** The effects of SYNTHROID (sodium levothyroxine) therapy are slow in being manifested. Side effects, when they do occur, are secondary to increased rates of body metabolism; sweating, heart palpitations with or without pain, leg cramps, and weight loss. Diarrhea, vomiting, and nervousness have also been observed. Myxedematous patients with heart disease have died from abrupt increases in dosage of thyroid drugs. Careful observation of the patient during the beginning of any thyroid therapy will alert the physician to any untoward effects.

In most cases with side effects, a reduction of dosage followed by a more gradual adjustment upward will result in a more accurate indication of the patient's dosage requirements without the appearance of side effects.

Dosage and Administration: The activity of a 0.1 mg. SYNTHROID (sodium levothyroxine) TABLET is equivalent to approximately one grain thyroid, U.S.P. Administer SYNTHROID tablets as a single daily dose, preferably after breakfast. In hypothyroidism without myxedema, the usual initial adult dose is 0.1 mg. daily, and may be increased by 0.1 mg. every 30 days until proper metabolic balance is attained. Clinical evaluation should be made monthly and PBI measurements about every 90 days. Final maintenance dosage will usually range from 0.2-0.4 mg. daily. In adult myxedema, starting dose should be 0.025 mg. daily. The dose may be increased to 0.05 mg. after two weeks and to 0.1 mg. at the end of a second two weeks. The daily dose may be further increased at two-month intervals by 0.1 mg. until the optimum maintenance dose is reached (0.1-1.0 mg. daily).

Supplied: Tablets: 0.025 mg., 0.05 mg., 0.1 mg., 0.15 mg., 0.2 mg., 0.3 mg., 0.5 mg., scored and color-coded, in bottles of 100, 500, and 1000. Injection: 500 mcg. lyophilized active ingredient and 10 mg. of Mannitol, N.F., in 10 ml. single-dose vial, with 5 ml. vial of Sodium Chloride Injection, U.S.P., as a diluent. SYNTHROID (sodium levothyroxine) **for Injection** may be administered intravenously utilizing 200-400 mcg. of a solution containing 100 mcg. per ml. If significant improvement is not shown the following day, a repeat injection of 100-200 mcg. may be given.

FLINT LABORATORIES
DIVISION OF TRAVENOL LABORATORIES, INC.
Morton Grove, Illinois 60053

THE FACTS ARE CLEAR AND HERE IS OUR OFFER.

Synthetic thyroid drugs are an improvement over animal gland products. Patients, even athyrotic ones, can be completely maintained on SYNTHROID (T_4) alone. Thyroid function tests are easy to interpret since they are *predictably* elevated when the patient adheres to SYNTHROID. Of all synthetic thyroid drugs, SYNTHROID is the most economical to the patient.

OFFER: EE

Free TAB-MINDER medication dispensers to start or convert all your hypothyroid patients to SYNTHROID. Free information to physicians on role of thyroid function tests in a new booklet titled: "Guideposts to Thyroid Therapy." Ask us.

Name

Address

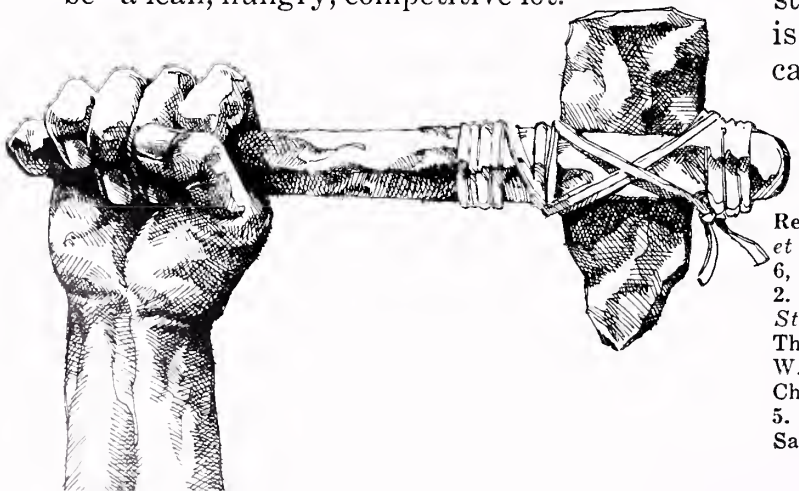
City State Zip

IF MORE MEN CRIED

At least seventy-five out of one hundred adults with duodenal ulcers are men.[1] Why? It may be significant that duodenal ulcer patients tend to crave recognition and are "especially vulnerable to threats to their manly assertive independence."[2]

Hypersecretion—an atavistic response. Stewart Wolf, who, with Harold G. Wolff, studied the personalities of duodenal ulcer patients, wonders if masculine competitiveness is related to "an atavistic urge to devour an adversary." It is striking, he reports, that an accentuation of gastric acid secretion and motility can be "induced in ulcer patients by discussions that arouse feelings of inadequacy, frustration and resentment."[2]

By chance? A lean, hungry lot. Was the link between emotions and gastric hyperacidity acquired through mutation to serve a purpose? During man's jungle period of evolution, the investigator points out, a male dealt with a foe by killing and devouring it. "It may be more than coincidence," he concludes, that peptic ulcer patients appear to be "a lean, hungry, competitive lot."[3]

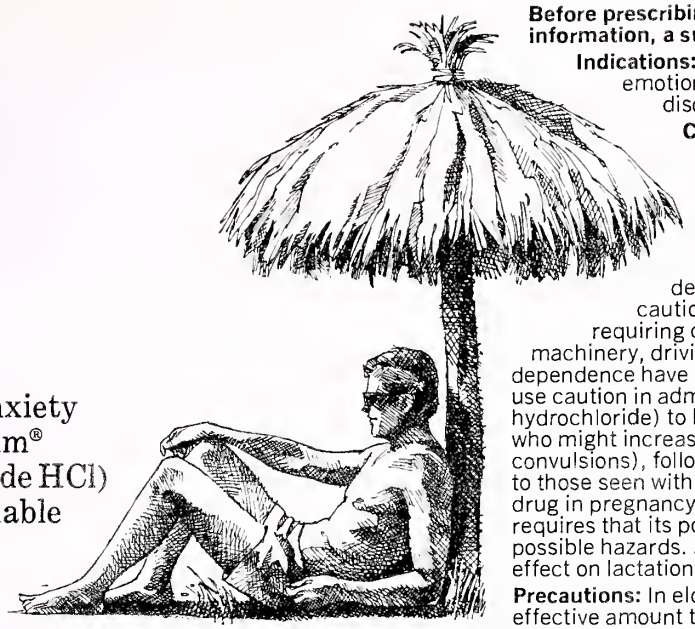


Big boys don't cry. If more men cried maybe fewer would wind up with duodenal ulcers. But men will be men—the sum total of their genes and what they are taught. Schottstaedt observes that when a mother admonishes her son who has hurt himself that big boys don't cry, she is teaching him stoicism.[4] Crying is the negation of everything society thinks of as manly. A boy starts defending his manhood at an early age.

Take away stress, you can take away symptoms. There is no question that stress plays a role in the etiology of duodenal ulcer. Alvarez[5] observes that many a man with an ulcer loses his symptoms the day he shuts up the office and starts out on a vacation. The problem is, the type of man likely to have an ulcer is the type least likely to take long vacations or take it easy at work.

The rest cure vs. the two-way action of Librax.® For most patients, the rest cure is as unrealistic as it is desirable. Still, the stress factor must be dealt with. And here is where the dual action of adjunctive Librax can help. Librax is the only drug that com-

References: 1. Silen, W.: "Peptic Ulcer," in Wintrobe, M. M., *et al.* (eds.): *Harrison's Principles of Internal Medicine*, ed. 6, New York, McGraw-Hill Book Company, 1970, p. 1444. 2. Wolf, S., and Goodell, H. (eds.): *Harold G. Wolff's Stress and Disease*, ed. 2, Springfield, Ill., Charles C Thomas, 1968, pp. 68-69. 3. *Ibid.*, p. 257. 4. Schottstaedt, W. W.: *Psychophysiologic Approach in Medical Practice*, Chicago, Ill., The Year Book Publishers, Inc., 1960, p. 163. 5. Alvarez, W. C.: *The Neuroses*, Philadelphia, Pa., W. B. Saunders Company, 1951, p. 384.



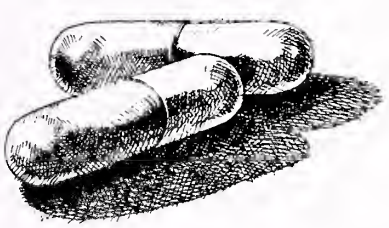
bines the antianxiety action of Librium® (chlordiazepoxide HCl) with the dependable antisecretory/ antispasmodic action of Quarzan® (clidinium Br).

Protects man from his own hungry personality. The action of Librium reduces anxiety—helps protect the vulnerable patient from the psychological overreaction to stress that clutches his stomach. At the same time, the action of Quarzan helps quiet the hyperactive gut, decreasing hypermotility and hypersecretion.

An inner healing environment with 1 or 2 capsules, 3 or 4 times daily. Of course, there's more to the treatment of duodenal ulcer than a prescription for Librax. The patient—with your guidance—will have to adjust to a different pattern of living if treatment is to succeed. During this adjustment period, 1 or 2 capsules of Librax 3 or 4 times daily can help establish a desirable environment for healing.

Librax: It can't change man's nature. But it can usually make it easier for men to cope with the discomfort of stress—both psychic and gastric—that can precipitate and exacerbate duodenal ulcer.

Librax: Rx #60 1 cap. *a.c.* and 2 *h.s.*



Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

in the treatment of duodenal ulcer

adjunctive

Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

Publication rules and suggestions to authors

1. Who may submit articles. The Rocky Mountain Medical Journal ordinarily accepts only articles prepared by members of the state societies we serve and by guest speakers at their official meetings.

2. Method of preparation. All material for publication must be typewritten, double spaced, with liberal margins, using only one side of the paper, pages consecutively numbered, and preferably on standard 8½ x 11 white bond paper. Carbon copies are *not* acceptable.

Title (preferably short) and author's name, city and state must appear at the top of the first page. Second and subsequent pages should be identified with consecutive page numbers and author's surname. If physician authors possess more than one degree, the MD only is used. Lesser degrees of non-MD authors or co-authors may be used.

Please include beneath the title or at the top of the first page a brief paragraph stating what the article is designed to show and, therefore, why it should be read. This introductory feature is, in editorial parlance, called the "blurb"; it is printed in bold type.

3. Where to submit material. All copy must be sent to the editor for the state in which the material originates. Editors for each state, with their mailing addresses, are listed monthly on the Table of Contents page of the Journal.

4. Acceptance or rejection. The state editor will (1) tentatively accept the article, (2) return it to the author with suggestions for revision, or (3) reject it. He will edit and forward approved copy to the publication office in Denver for final editing and scheduling.

5. Order of publication. Ordinarily, articles will be published in the order received. Those whose value is seasonal, whose value would be lost if publication is delayed, or which reflect priority of original research, are given special consideration. State presidential addresses, programs, state society minutes, and timely organization announcements are given priority.

6. Length of articles. Scientific papers should be "boiled down" not to exceed ten pages of double-spaced typewritten standard 8½ x 11 inch sheets. Shorter papers are more acceptable to editors and readers, and earlier publication is probable. Every journal is in competition for the reader's time, and condensation is the order of the day. For this reason, and because of financial and space limitations, we request that copy be condensed to the greatest extent consistent with conveying the message.

7. Illustrations. A limited number of illustrations or "cuts," usually up to six, will ordinarily be accepted within our own publication budget if the editor believes they enhance the value of the article. Clear photos, simple diagrams or line drawings in black on white, printing rather than writing, reproduce well. Cuts should be mounted separately, and the paper or cardboard mounts should be the same size as that upon which the article is typed. Each should have its caption below: Fig. 1, Fig. 2, etc., with a short descriptive sentence. Authors will be billed our cost for excess above six cuts.

8. Tables. Tables should be simple, presenting only brief relevant data, amply spaced. They should be placed at the back of the manuscript on separate sheets. Each should have its number and title above: Table 1, Title; Table 2, Title; etc. Long, large, or complicated tables ordinarily are not acceptable.

9. Case reports. Case reports are popular with our readers. A brief introductory statement concerning the condition or disease, tells why the case is presented. The report follows with a separate heading, CASE REPORT or CASE 1, CASE 2, etc. Include only relevant, positive laboratory and other data. Names, initials, and numbers are unimportant; age, sex, and sometimes occupation are significant. Minimize dates; then make it month, date, year—as February 9, 1969; not 2/9/69. After the case presentation, review or sum it up under a heading such as Discussion, Comment, Summary or Conclusion.

10. Footnotes. Footnotes must be brief. One at the bottom of the first page should state the Society and date of presentation, and institutional origin, if any. Special titles or position of the author, acknowledgements, etc., will be added according to simplicity, editorial policy and discretion.

11. References. Reference lists rarely add to the value of an article for the majority of readers. We will make every effort to publish short reference lists, but long ones will be deleted. Incidentally, the proper heading is "References," not "Bibliography." The latter implies everything in the literature upon the subject. Make them uniform in style and brief, as: Jones, W. K.: Pyelonephritis in Infancy. JAMA 141:75. 1964.

12. Editorials. We would like to have more submitted by our State editors and the membership at large. Readers must get tired of thunder from publication headquarters in Denver; frankly, we do too! Speak out, and we'll sign your name, initials, or respect your request for anonymity, as you choose. If you don't like something we do or say, please let us in on it; we could even stand to hear about it if something happens to please you. A "Letter to the Editor" may help you get something off your mind. We're asking for it and we have a place to put it—in the Journal, that is!

13. Proofs. Galley proofs are submitted to the author, and prompt return is essential. Authors should correct typographical, grammatical, or rhetorical errors, but do not reinsert or rewrite sentences, paragraphs, tables, etc., which an editor may have deleted, condensed, or paraphrased. When an article reaches the galley-proof stage, the author may NOT re-edit his article; that is the privilege of the Journal's editors.

14. Reprints. Most authors desire reprints. Our printing firm provides them on a non-profit basis. They MUST be ordered when the author submits his corrected proof.

15. Our Journal is copyrighted. We and most state and regional journals owned by state medical societies have granted each other continuing copyright permission to copy or quote with proper credit. Copyright permission is not granted to commercial or privately owned publications.

THE WASHINGTON SCENE

A monthly news summary from the nation's Capitol by the Washington Office of the AMA.

Expected to be signed into law shortly is health manpower legislation that will authorize an estimated $2.9 billion in aid to health profession students and their schools in the next three years—and provide the facilities and programs to close the manpower shortages in the health professions within seven years.

Medical schools would receive $11,500 for the full-term cost of training each student. Each school would receive $2,500 per student per year for the first three years of training. The grant rises to $4,000 for the year of graduation. In order to encourage swifter training, three year schools would receive $13,500 based on $2,500 for each of the first two years and $8,500 for the third year.

Each school would be required to enroll an additional five per cent of students, or five students . . . whichever is the greater . . . to qualify for assistance. An extra $1,000 a year would be awarded schools for each student exceeding this total. The legislation will also help establish at least five new medical colleges.

Additional authorizations would provide $270,000,000 for health manpower education initiative awards to alleviate manpower shortages and to train new types of personnel, and $412,000,000 for special project grants for programs in family medicine, physician assistant training, and others. The bill continues support for scholarship and student loans at increased levels as has been provided heretofore in the Health Professions Educational Assistance Act.

Send us your correct listing

for the

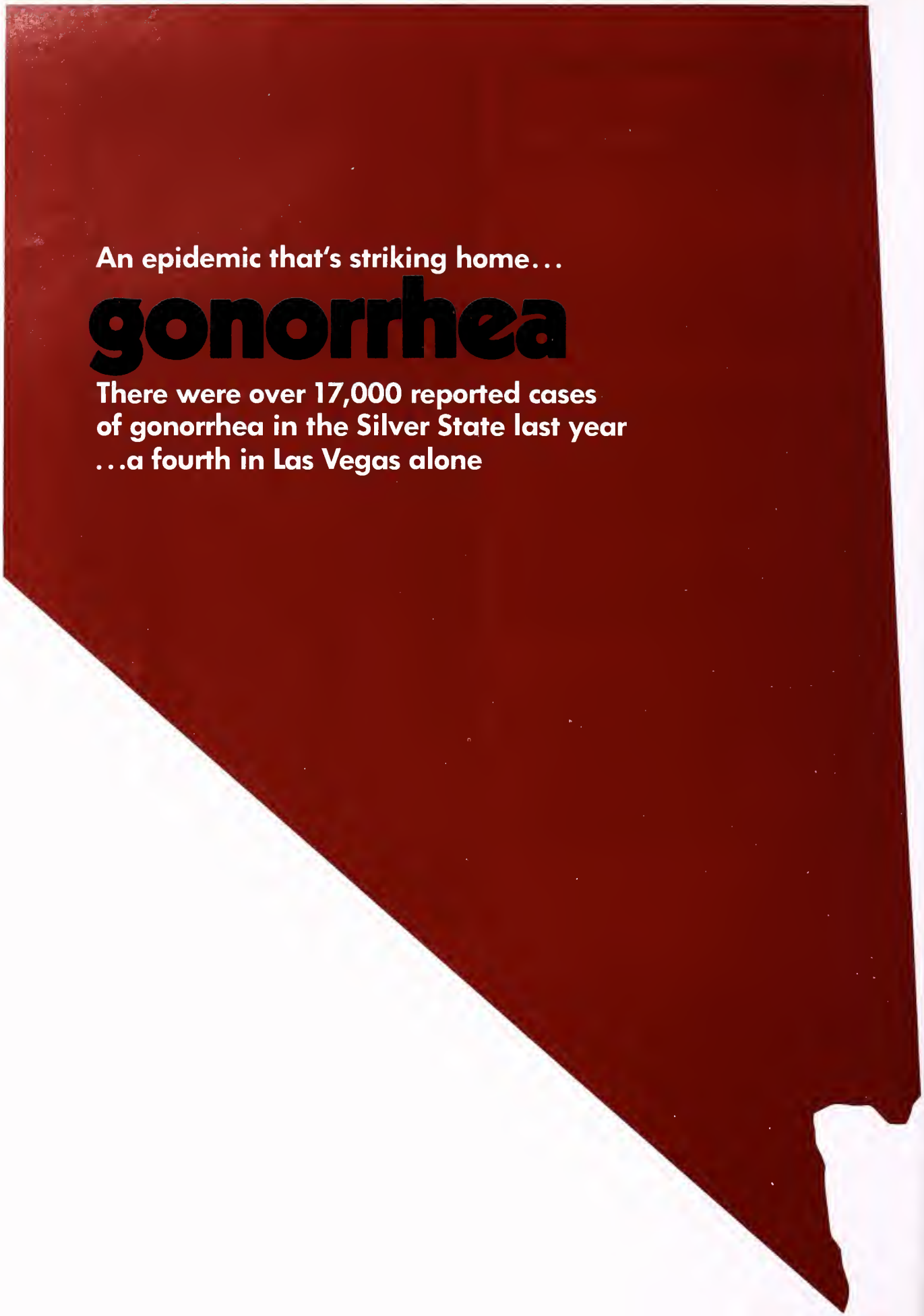
1972 ROCKY MOUNTAIN MEDICAL JOURNAL DIRECTORY OF PHYSICIANS

(See Page 49 in this issue)

Still serving...

Miltown®
(meprobamate)
400 mg tablets

WALLACE PHARMACEUTICALS
Cranbury, N.J. 08512


An epidemic that's striking home...
gonorrhea
There were over 17,000 reported cases
of gonorrhea in the Silver State last year
...a fourth in Las Vegas alone

In Nevada... and everywhere else...
a new alternative

NEW Trobicin® SPECTINOMYCIN DIHYDROCHLORIDE, PENTAHYDRATE, UPJOHN

single-dose treatment for intramuscular use only

a chemically distinct antibiotic indicated specifically for treatment of acute gonorrhea:
in the male–acute urethritis and proctitis
in the female–acute cervicitis and proctitis
when due to susceptible strains of *N. gonorrhoeae*

High cure rate:*96% of 571 males, 95% of 294 females
(Dosages, sites of infection, and criteria for diagnosis and cure are defined on page 3 of advertisement)

Assurance of a single-dose, physician-controlled treatment schedule

No allergic reactions occurred in patients with an alleged history of penicillin sensitivity when treated with Trobicin, although penicillin antibody studies were not performed

Active against most strains of Neisseria gonorrhoeae *in vitro*
(M.I.C. 7.5-20 mcg/ml)

A single two-gram injection produces peak serum concentrations averaging about 100 mcg/ml in one hour
(average serum concentrations of 15 mcg/ml present 8 hours after dosing)

NOTE: Antibiotics used in high doses for short periods of time to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Since the treatment of syphilis demands prolonged therapy with any effective antibiotic, and since Trobicin is not indicated in the treatment of syphilis, patients being treated for gonorrhea should be closely observed clinically. Monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected. Trobicin is contraindicated in patients previously found hypersensitive to it.

For full prescribing information, including contraindications, warnings and precautions, please see last page of this advertisement.

*Data compiled from reports of 14 investigators.

Upjohn The Upjohn Company, Kalamazoo, Michigan 49001

Trobicin and the gonorrhea challenge

An accelerating epidemic— a decelerating susceptibility to penicillin

Gonorrhea is now the most prevalent reported communicable disease in the nation. The estimated number of new cases of gonorrhea in the United States exceeded two million for the first time in 1970. To compound the problems, strains of *N. gonorrhoeae* increasingly resistant to penicillin and other antibiotics are appearing throughout the country. Schedules of treatment which were effective only a few years ago now result in a significant percentage of treatment failure. *In vitro* studies have demonstrated that resistance of *N. gonorrhoeae* may also develop to Trobicin.

Thus, while aqueous Procaine Penicillin G remains the drug of choice for the majority of patients, the need for a non-penicillin, intramuscular antibiotic for acute gonorrhea in the male and female is abundantly clear. Such an antibiotic should be effective following a single intramuscular injection —and it should not demonstrate cross-resistance with penicillin

Trobicin—a new alternative specifically for the treatment of acute gonorrhea

Trobicin is indicated in the treatment of acute gonorrheal urethritis and proctitis in the male and acute gonorrheal cervicitis and proctitis in the female when due to susceptible strains of *N. gonorrhoeae*.

High cure rates: 96% of 571 males, 95% of 294 females

No allergic reactions occurred in patients with an alleged history of penicillin hypersensitivity when treated with Trobicin, although penicillin antibody studies were not performed.

Chemically distinct

Trobicin is structurally not related to any other antibiotic commonly used to treat gonorrhea.

The assurance of a single-dose, physician-controlled treatment schedule

Intramuscular injections should be made deep into the upper outer quadrant of the gluteal muscle.

Adult male: Single 2 gram dose I.M. in acute gonorrheal urethritis. Single 4 gram dose I.M. (should be divided between two gluteal injection sites) in gonorrheal proctitis and in patients being re-treated after failure of previous antibiotic therapy. In geographic areas where antibiotic resistance is known to be prevalent, initial treatment with 4 grams intramuscularly is preferred.

Adult female: Single 4 gram dose I.M. (should be divided between two gluteal injection sites) in acute gonorrheal cervicitis and proctitis.

Safety for use in pregnancy has not been established, nor has safety for use in infants and children.

Clinical Results with Single-Dose Treatment, Intramuscularly* (Data compiled from reports of 14 investigators**)

	Dosage	Number of Patients	Number Cured	Percent Cured
Adult Males: Gonorrheal urethritis	**2 grams** **4 grams**	**475** **96**	**457** **93**	**96%** **97%**
Adult Females: Gonorrheal cervicitis	**4 grams**	**294**	**280**	**95%**

Diagnosis was confirmed by cultural identification of *N. gonorrhoeae* on Thayer-Martin medium in all patients. Criteria for cure: negative culture after at least 2 days post-treatment in males and at least 7 days post-treatment in females. Any positive culture obtained post-treatment was considered evidence of treatment failure even though the follow-up period might have been less than the periods cited above under "criteria for cure" except when the investigator determined that reinfection through additional sexual contacts was likely. Such cases were judged to be reinfections rather than relapses or failures. These cases were regarded as non-evaluatable and were not included in the table above.

The following reactions were observed during the single-dose clinical trials: soreness at the injection site, urticaria, dizziness, nausea, chills, fever and insomnia.

During multiple-dose subchronic tolerance studies in normal human volunteers, the following were noted: a decrease in hemoglobin, hematocrit and creatinine clearance; elevation of alkaline phosphatase, BUN and SGPT. In single and multiple-dose studies in normal volunteers, a reduction in urine output was noted. Extensive renal function studies demonstrated no consistent changes indicative of renal toxicity.

*4-gram doses were injected in two gluteol sites.

**Medicol Research Files, The Upjohn Company

a chemically distinct antibiotic indicated specifically for treatment of acute gonorrheal urethritis and proctitis in males and cervicitis and proctitis in females when due to susceptible strains of *N. gonorrhoeae*

new Trobicin®

STERILE SPECTINOMYCIN DIHYDROCHLORIDE PENTAHYDRATE, UPJOHN

single-dose treatment for intramuscular use only

Sterile Trobicin® (spectinomycin dihydrochloride pentahydrate)—For Intramuscular injection: 2 gm vials containing 5 ml when reconstituted with diluent. 4 gm vials containing 10 ml when reconstituted with diluent.

An aminocyclitol antibiotic active *in vitro* against most strains of *Neisseria gonorrhoeae* (MIC 7.5 to 20 mcg/ml). Definitive *in vitro* studies have shown no cross resistance of *N. gonorrhoeae* between Trobicin and penicillin.

Indications: Acute gonorrheal urethritis and proctitis in the male and acute gonorrheal cervicitis and proctitis in the female when due to susceptible strains of *N. gonorrhoeae*.

Contraindications: Contraindicated in patients previously found hypersensitive to Trobicin. Not indicated for the treatment of syphilis.

Warnings: Antibiotics used to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Patients should be carefully examined and monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected.

Safety for use in infants, children and pregnant women has not been established.

Precautions: The usual precautions should be observed with atopic individuals. Clinical effectiveness should be monitored to detect evidence of development of resistance of *N. gonorrhoeae*.

Adverse reactions: The following reactions were observed during the single-dose clinical trials: soreness at the injection site, urticaria, dizziness, nausea, chills, fever and insomnia.

During multiple-dose subchronic tolerance studies in normal human volunteers, the following were noted: a decrease in hemoglobin, hematocrit and creatinine clearance; elevation of alkaline phosphatase, BUN and SGPT. In single and multiple-dose studies in normal volunteers, a reduction in urine output was noted. Extensive renal function studies demonstrated no consistent changes indicative of renal toxicity.

Dosage and administration: Keep at 25°C and use within 24 hours after reconstitution with diluent.

Male—single 2 gram dose (5 ml) intramuscularly. Patients with gonorrheal proctitis and patients being re-treated after failure of previous antibiotic therapy should receive 4 grams (10 ml). In geographic areas where antibiotic resistance is known to be prevalent, initial treatment with 4 grams (10 ml) intramuscularly is preferred.

Female— single 4 gram dose (10 ml) intramuscularly.

How supplied: *Vials, 2 and 4 grams —with ampoule of Bacteriostatic Water for Injection with Benzyl Alcohol 0.9% w/v.* Reconstitution yields 5 and 10 ml respectively with a concentration of spectinomycin dihydrochloride pentahydrate equivalent to 400 mg spectinomycin per ml. For intramuscular use only.

Susceptibility Powder—for testing *in vitro* susceptibility of *N. gonorrhoeae*.

Human pharmacology: Rapidly absorbed after intramuscular injection. A two-gram injection produces peak serum concentrations averaging about 100 mcg/ml at one hour with 15 mcg/ml at 8 hours. A four-gram injection produces peak serum concentrations averaging 160 mcg/ml at two hours with 31 mcg/ml at 8 hours.

For additional product information, see your Upjohn representative or consult the package insert. MED-B-1-S (LWB)

Upjohn

The Upjohn Company, Kolomozoo, Michigan 49001

Relieves stuffy and runny noses- promptly.
Makes your patient's world a little sunnier.

Triaminic®

phenylpropanolamine hydrochloride, pyrilamine maleate, pheniramine maleate

"the Sunshine Tablet"

Formula: Each timed-release tablet contains phenylpropanolamine hydrochloride, 50 mg.; pyrilamine maleate, 25 mg.; pheniramine maleate, 25 mg. **Indications:** Relief from such symptoms as nasal congestion, profuse nasal discharge and postnasal drip associated with colds, nasal allergies, sinusitis and rhinitis. **Precautions:** Patients should not drive a car or operate dangerous machinery if drowsiness occurs. Use with caution in the presence of hypertension, hyperthyroidism, cardiovascular disease, or diabetes. **Side Effects:** Occasional drowsiness, blurred vision, cardiac palpitations, flushing, dizziness, nervousness or gastrointestinal upsets. **Dosage:** Adults—one tablet swallowed whole, in morning, midafternoon and before retiring. **Availability:** In bottles of 100, 250.

Rx ONLY

Dorsey Laboratories, Lincoln, Nebraska, 68501

Additional information available to the profession on request.
Eli Lilly and Company • Indianapolis, Indiana 46206

Lilly

101488

in cardiac edema

Dyazide®

Trademark

Each capsule contains 50 mg. of Dyrenium® (brand of triamterene) and 25 mg. of hydrochlorothiazide.

gets the water out

spares the potassium

Before prescribing, see complete prescribing information in SK&F literature or *PDR*.

Indications: Edema associated with congestive heart failure, cirrhosis of the liver, the nephrotic syndrome, late pregnancy; also steroid-induced and idiopathic edema, and edema resistant to other diuretic therapy. 'Dyazide' is also indicated in the treatment of mild to moderate hypertension.

Contraindications: Pre-existing elevated serum potassium. Hypersensitivity to either component. Continued use in progressive renal or hepatic dysfunction or developing hyperkalemia.

Warnings: Do not use dietary potassium supplements or potassium salts unless hypokalemia develops or dietary potassium intake is markedly impaired. Enteric-coated potassium salts may cause small bowel stenosis with or without ulceration. Hyperkalemia (>5.4 mEq/L) has been reported in 4% of patients under 60 years, in 12% of patients over 60 years, and in less than 8% of patients overall. Rarely, cases have been associated with cardiac irregularities. Accordingly, **check serum potassium during therapy, particularly in patients with suspected or confirmed renal insufficiency (e.g., certain elderly or diabetics). If hyperkalemia develops, substitute a thiazide alone. If spironolactone is used concomitantly with 'Dyazide', check serum potassium frequently**—they can both cause potassium retention and sometimes hyperkalemia. Two deaths have been reported in patients on such combined therapy (in one, recommended dosage was exceeded; in the other, serum electrolytes were not properly monitored). Observe regularly for possible blood dyscrasias, liver damage or other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving Dyrenium (triamterene, SK&F). Rarely, leukopenia, thrombocytopenia, agranulocytosis, and aplastic anemia have been reported with the thiazides. Watch for signs of impending coma in acutely ill cirrhotics. Thiazides are reported to cross the placental barrier and appear in breast milk. This may result in fetal or neonatal hyperbilirubinemia, thrombocytopenia, altered carbohydrate metabolism and possibly other adverse reactions that have occurred in the adult. When used during pregnancy or in women who might bear children, weigh potential benefits against possible hazards to fetus.

Precautions: Do periodic serum electrolyte and BUN determinations. Do periodic hematologic studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in postsympathectomy patients. The following may occur: hyperuricemia and gout, reversible nitrogen retention, decreasing alkali reserve with possible metabolic acidosis, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), digitalis intoxication (in hypokalemia). Use cautiously in surgical patients. Concomitant use with antihypertensive agents may result in an additive hypotensive effect.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis; rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting (may indicate electrolyte imbalance), diarrhea, constipation, other gastrointestinal disturbances. Rarely, necrotizing vasculitis, paresthesias, icterus, pancreatitis, and xanthopsia have occurred with thiazides alone.

Supplied: Bottles of 100 capsules.

SK&F

SK&F Co., Carolina, P.R. 00630
a subsidiary of Smith Kline & French Laboratories

Schering

for grown-up colds

...that call for strong medicine
...the kinds that potent DRIXORAL is reserved for.
(Noses under 12 years of age
aren't eligible.) For the adult case of
nasal/sinus congestion:
a tablet for the day keeps congestion away,
a tablet at night, sleeper's delight.

Sustained-Action Tablets

b.i.d. Drixoral®

brand of dexbrompheniramine maleate 6 mg. and d-isoephedrine sulfate 120 mg.

The round-the-clock oral decongestant

Clinical Considerations: Indications: DRIXORAL is indicated for round-the-clock relief of symptoms of upper respiratory mucosal congestion in seasonal and perennial nasal allergies, acute rhinitis and rhinosinusitis, and eustachian tube blockage.
Contraindications: DRIXORAL should not be given to children under 12 years of age. DRIXORAL should not be administered to pregnant women or nursing mothers until the safety of this preparation for use during gestation and lactation is established. The preparation is contraindicated also in patients with severe hypertension and coronary artery disease. **Warnings:** As in the case of other preparations containing central nervous system acting drugs, patients receiving DRIXORAL should be cautioned about possible additive effects with alcohol and other central nervous system depressants (hypnotics, sedatives, tranquilizers). For the same reason they should be cautioned against hazardous occupotions requiring complete mental alertness such as operating machinery or driving a mator vehicle. **Precautions:** Isoephedrine-containing preparations should be used with caution in the presence of: hypertension; coronary artery disease; any ather cardiovascular disease; glaucoma; prostatic hypertrophy; hyperthyroidism; diabetes. **Adverse Reactions:** The physician should be alert to the possibility of all possible adverse reactions which have been observed with sympathomimetic and antihistaminic drugs. These include: drowsiness; confusion; restlessness; nausea; vamiting; drug rash; vertigo; palpitation; anarexia; dizziness; dysuria due to vesicle sphincter spasm; headache; insamnia; anxiety; tension; weakness; tachycardia; angina; sweating; blood pressure elevation; mydriasis; gastric distress; abdominal cramps; central nervous system stimulatian; circulatary callapse. **For more complete details, consult package insert or Schering literature available from your Schering Representative or Medical Services Department, Schering Corporation, Union, New Jersey 07083.**

SCH 2654

STANFORD UNIVERSITY SCHOOL OF MEDICINE

Office of Postgraduate Medical Education

announces an interdepartmental course

BASIC SCIENCE FOR CLINICIANS

February 28-29—March 1-2-3, 1972

This course is a concise but comprehensive review of basic medical science. It has been designed to meet the needs of those clinicians who wish to expand their knowledge of molecular biology.

Lecturers:

Paul Berg, Ph.D.

Glen B. Haydon, M.D.

Robert Hofstadter, Ph.D. (Nobel Laureate)

Arthur Kornberg, M.D. (Nobel Laureate)

Norman Kretchmer, M.D., Ph.D.

Joshua Lederberg, Ph.D. (Nobel Laureate)

I. Robert Lehman, Ph.D.

Linus C. Pauling, Ph.D. (Nobel Laureate)

Edward Rubenstein, M.D.

Robert T. Schimke, M.D.

Topics covered:

Matter and energy
Photons, electrons, the periodic table
Chemical bonds
The subatomic particles
Correlation of cell structure and function—an overview
Cell ultrastructure
The building block molecules (purines, pyrimidines, sugars, lipids)
General chemistry of amino acids and proteins
DNA
Expression of genetic information
Enzymes, their actions and their regulation
Biochemical aspects of differentiation
Bioenergetics
Intermediary metabolism
Chemistry and biology of water
Hemoglobin
Digestive enzymes and hormones
Overview of genetics

In addition to the lecture presentations in formal office discussions in small groups, on an elective basis, will be held with members of the faculty:

Paul Berg, Ph.D.—Tumor virus
John W. Farquhar, M.D.—Atherosclerosis
John H. Frenster, M.D.—Tumor immunology
Glen B. Haydon, M.D.—Electron microscopy
Halsted R. Holman, M.D.—Rheumatic disorders
Herbert N. Hultgren, M.D.—The coronary circulation
Henry S. Kaplan, M.D.—Radiobiology and radiation therapy
Norman Kretchmer, M.D., Ph.D.—Growth; Inborn errors
Joseph P. Kriss, M.D.—Nuclear Medicine
Luigi Luzzatti, M.D.—Genetics and disease; Chromosomes and disease
Joshua Lederberg, Ph.D.—Genetics: opportunities and problems
Roy H. Maffly, M.D.—Salt and water
Thomas C. Merigan, M.D.—Interferon
Linus C. Pauling, Ph.D.—Nutrition
Judith G. Pool, Ph.D.—Blood coagulation
Eugene D. Robin, M.D.—Molecular transport
Robert T. Schimke, M.D.—Hormone action
Stanley L. Schrier, M.D.—The red cell and its diseases
Herbert C. Schwartz, M.D.—Sickle cell anemia
Eric M. Shooter, Ph.D.—Nerve growth
Norman E. Shumway, M.D.—Cardiac transplantation

ACME Computer Facility Tour
Stanford Linear Accelerator Tour

APPLICATION FORM

BASIC SCIENCE FOR CLINICIANS — **February 28-March 3, 1972**
Fee: $235

NAME_____
Last First Middle

ADDRESS_____
Street City State Zip Code

MEDICAL SCHOOL_____ Degree_____ Year_____

Please make your check payable to STANFORD UNIVERSITY SCHOOL OF MEDICINE and mail to the Office of Postgraduate Medical Education, Stanford University School of Medicine, M-121, Stanford, California 94305.

Attendance Limited — Advance Registration Required.

MEETINGS

The Office of Postgraduate Medical Education
University of Colorado School of Medicine
Denver, Colorado

Colorado Academy of General Practice
ANNUAL SUNDAY SYMPOSIUM
January 23, 1972

EIGHTEENTH ANNUAL GENERAL PRACTICE REVIEW
January 24-29, 1972
February 7-12, 1972 (Repeat of January Session)

HIGH RISK INFANT CARE
February 14-18, 1972 (Limited)

FIFTH ANNUAL SYMPOSIUM ON SURGERY OF THE HAND
February 23-26, 1972

DIAGNOSTIC ULTRASOUND IN MEDICINE
March 9-11, 1972
TRAUMA
March 27-30, 1972

CLINICAL DERMATOLOGY FOR THE FAMILY PHYSICIAN
April 27-29, 1972 (Limited)

National League for Nursing
Western Region Conference on National Health Insurance

IMPLICATIONS FOR DELIVERY OF HEALTH CARE
Sheraton Inn-Airport, San Diego
January 24-26, 1972

Further information may be obtained from Loudene I. Grady, Director, Western Office, National League for Nursing, Inc., 760 Market Street, San Francisco, California 94102.

Montana Academy of General Practice
BIG MOUNTAIN MEDICAL-SKI CONFERENCE
Whitefish, Montana
January 25-28, 1972

Montana Medical Association
25th INTERIM MEETING
Colonial Motor Hotel, Helena, Montana
April 14-15, 1972

Coronary Care Ski Weekend
MANAGEMENT DECISIONS IN CORONARY DISEASE
The Big Mountain, Whitefish, Montana
February 10-13, 1972

Fee: $25.00.

Information and application requests to WICHE MS/RMP Coronary Care Training Program, 500 West Broadway, Missoula, Montana 59801.

Seattle Surgical Society Annual Meeting
Washington Plaza Hotel, Seattle, Washington
January 21-22, 1972

Dr. Joseph J. Kaufman, Chief of the Division of Urology at the UCLA School of Medicine will be the guest speaker.

POSTGRADUATE COURSE IN ALLERGY
Jackson Lake Lodge, Grand Teton National Park, Wyoming
June 26-July 1, 1972

For information, program and registration, write to Russell I. Williams, MD, Director, Professional Building, 1605 East 19th Street, Cheyenne, Wyoming 82001.

Abbey Will Lend You a Hand in Home Convalescence.

Whatever it is you need, we've got it. For rent. And for sale. The very latest advances in medical technology. And trained technicians to show your patients how to use whatever you're renting.

And Abbey doesn't stop there. We process **Medicare** equipment claims, too. And we're at your service twenty-four hours a day. We've been servicing your patients forty years, so you can relax. We've got everything: Bird and Bennett IPPB units, traction equipment, aspirators, Aquamatic "K" pads, Thermophore moist heat pads, and complete oxygen service. And we deliver **immediately.** Give us a call. It's a pleasure to help.

ABBEY RENTS ...and sells, too! © 1971
A CONSOLIDATED FOODS COMPANY RESPONSIVE TO CONSUMER NEEDS

Denver • 677 So. Colorado Blvd. • **733-5521**

25th National Conference on Rural Health

PARTNERSHIP FOR RURAL HEALTH CARE DEVELOPMENT

St. Francis Hotel, San Francisco, California
March 16-17, 1972

This program offers 11 hours of instruction. Plan now to attend next year's 26th National Conference on Rural Health, The Statler-Hilton, Dallas, Texas, March 29-30, 1973. Sponsored by the Council on Rural Health, American Medical Association.

The University of Miami Law Center and School of Medicine

MEDICAL MALPRACTICE, A LEGAL COURSE FOR DOCTORS

Americana Hotel, Bal Harbour, Florida
March 1-4, 1972

The purpose of the seminar is to give the doctors and hospital administrators an in-depth introduction to their legal rights and duties in relation to their patients. Taught completely by lawyers, it will be a non-adversary, factual, legal, and practical presentation for the purpose of education.

Inquiries for further information should be addressed to IV Medical/Legal Institute, University of Miami Law Center, P. O. Box 8087, Coral Gables, Florida 33124.

"My secret? For heartburn I always use 'Dicarbosil'."

Dicarbosil®
ANTACID
Write for Clinical Samples
ARCH LABORATORIES
319 South Fourth Street, St. Louis, Missouri 63102

Colorado Division of the American Cancer Society

6TH ANNUAL MIDWINTER CANCER SEMINAR
Vail Village Inn, Vail, Colorado
January 26-28, 1972

A fine scientific meeting with an outstanding faculty of renowned physicians to present new information on the treatment of LEUKEMIAS and LYMPHOMAS.

Conference sessions at 8:00 a.m. and 4:30 p.m. each day, leaving middle of each day free to enjoy winter sports facilities at Vail.

Special Guest Speakers: Henry S. Kaplan, MD, Chairman, Department of Radiology, Stanford University Medical Center; Ronald F. Dorfman, MD, Associate Professor of Pathology, Stanford University Medical Center.

AAGP CREDIT—10 Hours.

Continuing Medical Education Course

MEDICAL THERAPEUTICS

University of Oklahoma Medical Center
March 31-April 1, 1972

More detailed information is available through the Office of Continuing Medical Education for Physicians, University of Oklahoma Medical Center, 800 N. E. 13th Street, Oklahoma City, Oklahoma 73104.

American Football and Basketball Conference '72

ATHLETIC INJURY BRIEFING

University of Notre Dame
March 23-26, 1972

Registration information on the Conference can be obtained direct from Notre Dame's Center for Continuing Education, South Bend, Indiana, or by writing the event's public relations agency, Ball Associates, 845 North Broad Street, Philadelphia, Pennsylvania 19123.

FAMILY MEDICINE REVIEW COURSE

University of Arizona Medical Center, Tucson, Arizona
April 12-15, 1972

The College of Medicine of the University of Arizona and the Arizona Academy of Family Physicians will jointly sponsor this course. Morning, afternoon and evening sessions will give primary attention to Internal Medicine, Pediatrics, Psychiatry, Obstetrics and Gynecology, and Community Medicine-Public Health. Continuing Education credits will be granted. Registration fee of $160 covers administrative costs, meals, and course materials.

For further information, contact Division of Continuing Education, University of Arizona, Tucson, Arizona 85721.

CALIFORNIA MEDICAL ASSOCIATION

IN CONJUNCTION WITH THE 101ST ANNUAL SESSION

PRESENTS IN SAN FRANCISCO . . .

NO REGISTRATION FEE

SYMPOSIA • SCIENTIFIC SECTION MEETINGS • HOUSE OF DELEGATES • EXHIBITS

SPECIAL CONFERENCES • GENERAL SESSIONS • REUNIONS

AIL
ODAY

application for HOTEL ACCOMMODATIONS

SAN FRANCISCO HILTON HOTEL

	Main Building	New Tower
Singles	$22-38	$37-43
Twins or doubles	$28-45	$44-49
Additional person in room	$ 8	$ 8
1 Bedroom suites	$74 & up	$97 & up
2 Bedroom suites	$97 & up	$147 & up

SEND TO: SAN FRANCISCO HILTON HOTEL RESERVATIONS
Mason at O'Farrell Streets, San Francisco, Ca. 94102

Please reserve the following accommodations for the CMA's 1972 Annual Session in San Francisco, February 12-16, 1972:

PLEASE CHECK PREFERENCE

☐ MAIN BUILDING ☐ MAIN BUILDING FLOOR 5-11 ☐ NEW TOWER

(INSIDE FREE PARKING AVAILABLE FLOORS 5-11 MAIN BUILDING)

Single Bedroom $.....Twin-Bedded $.....Double Bed $.....Suite $.....

Arrival (date) ..... Hour ..... a.m p.m. Departure (date) ..... Hour ..... a.m. p.m.

THE NAME AND ADDRESS OF EACH HOTEL GUEST MUST BE LISTED. Inelude names and addresses of *each* person in a double or twin-bedded room, and names and addresses of *all other persons* for whom you are requesting reservations.

Your Name: .....

Address: .....

City and State ..... Zip Code

COVERAGE

CMS — Hartford Group Professional Liability Program for Colorado doctors.

Since 1967, malpractice insurance premiums have skyrocketed as much as 414%, while during this same period total claims and legal expenses paid by insurance companies have shown virtually no increase.

To remedy this situation, the Colorado Medical Society's Committee on Professional Insurance and Retirement thoroughly researched the available malpractice insurance market. As a result, the CMS — Hartford Professional Liability Insurance Program was developed and submitted to the CMS membership with approval of the Colorado Medical Society Board of Trustees.

Lower Malpractice Insurance Costs are the primary goal of this program, which is virtually identical to that in operation in the seven county Los Angeles area (SoCap). CMS — Hartford is the *best state-wide group program* in existence today.

Cost saving features of the CMS — Hartford Plan include:

1. Hartford will compute interest on a quarterly basis on all premium dollars paid in and held by Hartford in its Loss Reserve Fund. (In its first year SoCap earned over $120,000.00 on its premiums paid in and it is estimated that by January 1, 1972 SoCap will have earned $300,000.00.)

2. All unused premium dollars will be returned to group members after an allowance for reasonable profit to Hartford and reasonable administrative expenses. (Recall that in the past five years Colorado doctors have paid in to various insurance companies *four to five million in excess of losses.)*

3. Hartford will make a full and total disclosure to the Society of all its expenses and costs in the program. (No insurance company has been willing to do this in the past.)

4. After a three year "experience period" the primary factor used in determining the future insurance rates will be the actual claims experience of the group in Colorado! Therefore, if there are few claims and/or payments, rates will go down sharply. (Colorado is a conservative state. In the past we *have been paying for bad losses in other states.)*

5. The retroactive rating plan will go into effect as soon as there are sufficient members in the group to produce a premium base of $1.5 million (approximately 1,500 physicians). (There is no time limit in which this base must be reached.)

6. Hartford will look to the CMS for advice in the handling of the program. (Thus, for the first time Colorado doctors will have a say in how claims are handled, which claims should be paid, and which should be litigated.) All applications for membership, all claims that arise will be presented to CMS for peer review.

7. CMS members, acting together, will be able to work in areas of preventive medicine through education, proposed legislation and peer review.

8. The program provides for rate stability. (The initial rates are 13% lower than "bureau rates" and there will be no rate increase except by agreement between Hartford and CMS.)

The Hartford Fire Insurance Company will underwrite this program through its Denver Regional Office. The Hartford is the sixth largest fire and casualty insurance company in the United States, with assets exceeding $2 billion.

Administration of the program will be handled by Warren & Sommer, Inc., a well established professional independent insurance agency experienced in all forms of coverages. A department within the agency is prepared to counsel doctors on their specialized insurance needs.

For complete information on advantages of the CMS — Hartford Plan, please mail the request form below, or phone the Warren & Sommer office. The success of this venture depends upon the participation and continued involvement of individual Society members.

THE HARTFORD
Insurance Group
Hartford, Connecticut

Administered by
Warren & Sommer, Inc.
3955 East Exposition
Denver, Colorado 80209
744-3711

To: Warren & Sommer, Inc.
3955 East Exposition
Denver, Colorado 80209

I would like to learn more about the CMS — Hartford Professional Liability Insurance Program.

☐ I would appreciate a telephone call.
☐ Send an information packet.

Please type or print:

NAME _____ PHONE _____

ADDRESS _____

CITY _____ ZIP _____

PLEASE NOTE: *ONLY* MEMBERS OF THE COLORADO MEDICAL SOCIETY ARE ELIGIBLE.

Upjohn again reduces the price of E-Mycin®

Once again Upjohn has been able to reduce the price of erythromycin without reducing the quality you expect from an Upjohn product.

Upjohn

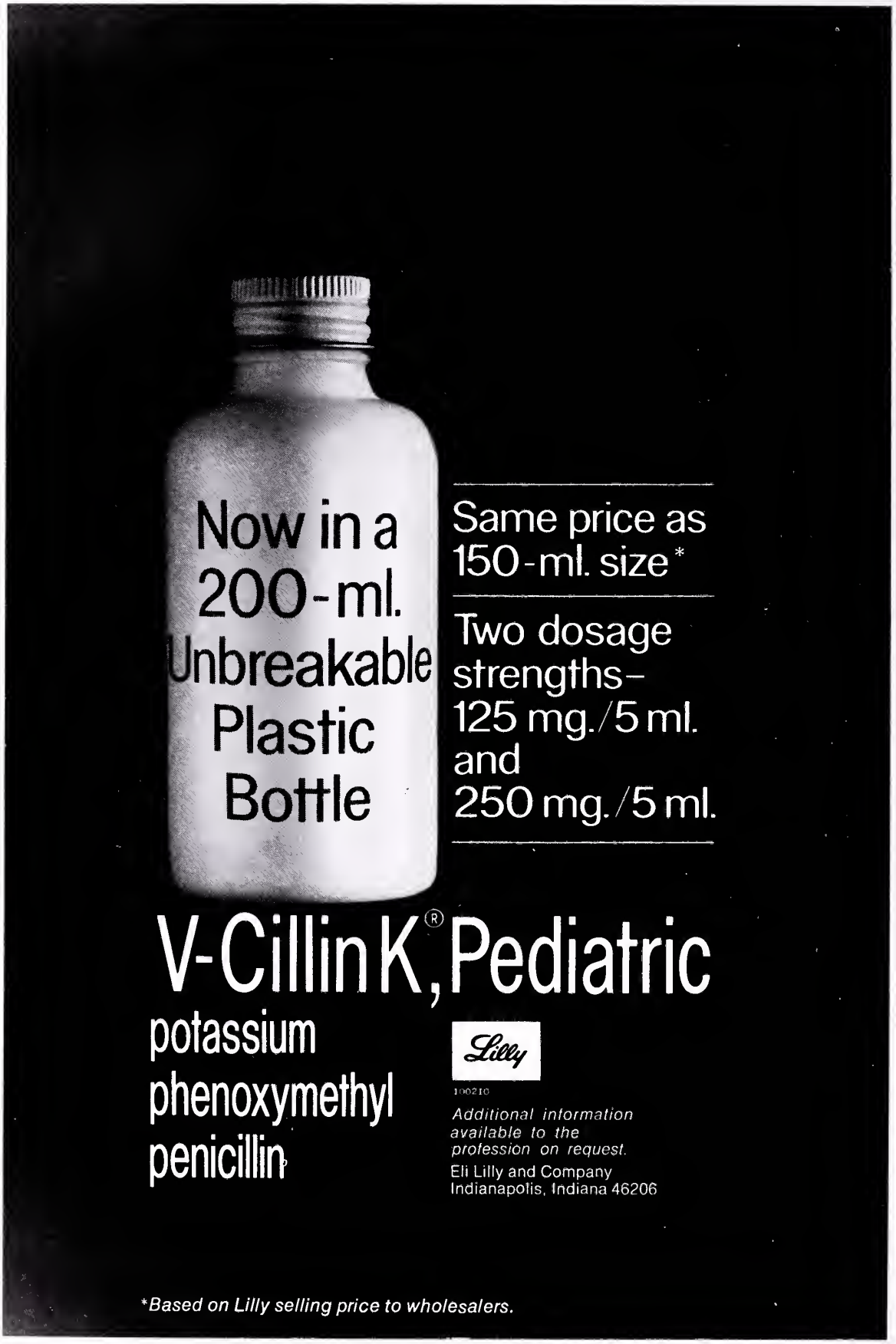
E-Mycin®

(erythromycin, Upjohn)

Available in 250 mg tablets

THE UPJOHN COMPANY
KALAMAZOO, MICHIGAN 49001

© 1971 The Upjohn Company
JA71-1711


Now in a 200-ml. Unbreakable Plastic Bottle
Same price as 150-ml. size*
Two dosage strengths– 125 mg./5 ml. and 250 mg./5 ml.
V-Cillin K,® Pediatric
potassium phenoxymethyl penicillin
Lilly
100210
Additional information available to the profession on request.
Eli Lilly and Company
Indianapolis, Indiana 46206
*Based on Lilly selling price to wholesalers.

Something Better Than the AMA?

In a nationally syndicated newspaper article we noted the title "Membership Falling — Young Medics Spark Revolt Against AMA." It told of a 30-year-old doctor in LaJolla, California who refuses to join the AMA because, he says, it is "archaic and irrelevant." He wears a button on his lapel which says, "Caution — the AMA may be hazardous to your health." Such buttons have appeared in 30 cities where there are chapters of the Medical Committee for Human Rights, a militant organization of some 7,000 doctors who apparently have radical feelings about the AMA. That organization is credited with reducing the AMA's share of practicing physicians. Membership statistics indicate the prospect of the AMA having a minority of the nation's dues-paying doctors. It had 61.5 per cent in 1962; 50.3 per cent in 1971. However, the AMA claims three out of four office-based doctors who treat most of our people.

About 8,000 doctors enter practice annually and indications are that the AMA has lost its hold on a significant per cent of them. Executive Vice-President of the AMA, Ernest B. Howard, acknowledges and all of us know that there is turmoil within, particularly regarding national health insurance. Conservative doctors call our AMA's Medicredit proposition socialistic and liberals call it a palliative. Neither group appears to be pleased with the AMA stand on the Nixon health maintenance plan for prepaid group medical care. Resignations apparently have been chiefly in the state of New York and are increasing in California.

It is encouraging that 9 out of 10 doctors who belong to state medical societies were AMA members last year. Many states have deliberated the question of whether AMA membership should be mandatory among those who belong to the state societies. We understand that compulsory dual membership ended in New York state last year, when there were 27,000 members. We have no recent news about California's referendum. Ohio and possibly other states are considering such referendums. Recent information is not yet available from them, but the Colorado Medical Society at its annual meeting in September decided to let AMA membership be optional among its members.

Rumblings among younger doctors indicate that they think the AMA is dominated by old men who are not "with it" and in touch with contemporary challenges. Some of them say that grass roots doctors are ignored but the "higher ups" have all the say. Doctors in towns of all sizes cherish their ties with organized medicine, some because of malpractice insurance needs, hospital privileges, and referred business. A limited number of residents and interns in various parts of the country are trying to form an organization called the "National Staff Conference." They criticize the AMA and claim they will survive with or without its blessings and that the parent organization will disintegrate if it doesn't listen to the younger men.

This sounds like the activists today in many areas. It probably is not as bad as it sounds, for a small per cent of physicians will never join anything and perhaps about 10 per cent of the members of organized medicine really care and contribute conscientiously and constructively to the progress and success of the state and national organizations. An unfortunate fact is that such publicity adds to our already damaged public image, and this we cannot afford. As with many of the disturbed and disturbing people in today's social order, they tear down and destroy but do not offer something in place of the institutions they are attacking.

We await with interest what the dissidents in our profession have in mind and will stand by with open ears and minds to see what they come up with. It is doubtful if, at least within our time, they will come forth with any organization with ideals, positive leadership, and public health educational activities in the medical world to compare with, let alone supersede, the American Medical Association.

THE ALARMING INCREASE IN venereal disease has become common knowledge and general concern. Fortunately, its seriousness has stimulated informational and educational programs, plus positive steps for its control. An example which has established a model which can be used anywhere is that which originated in the Colorado Department of Health in July, 1970, it committed half of one senior public health educator's time to VD information and education. Over 4,000 "susceptibles" between 5 and 25 years of age plus 400 teachers, administrators, counselors, education association personnel and parents were reached by the program. A metropolitan mass media campaign was thereby instigated. A leading advertising agency (Frye-Sills) directed the talent and experience of its staff plus radio and TV time for announcements. The Department of Community Services donated its phone number for a "VD Hot Line." Telephone volunteers were recruited from Denver University, Denver County Court, Office of Comprehensive Health Planning, National Secretaries Association, Colorado Department of Health and Metro State College. Through the Health Services of the Denver Public Schools, 13,000 posters were placed, and the Jaycees distributed posters to schools outside the metropolitan area. The State Department of Health contacted school superintendents in surrounding counties. Davis Brothers Wholesale Drug Distributers supplied posters to all metro area drugstores.

Venereal Disease Education Program

Obviously, treatment facilities and cooperation of physicians were necessary. The State Health Department sponsored meetings to include the county and state medical societies, pharmacists, medical school representatives, Lowry Air Force Base Medical Services, the local Department of Health and Hospitals and Denver University Mass Communications Department. Letters to private physicians pointed up the problem and asked their help. Twenty-six physicians and the Denver Clinic responded. Governor John Love granted emergency funds for a new clinic at Colorado General Hospital and the Legislature provided funds for a permanent clinic. Thus, tax dollars were saved because of private resources.

Results of the campaign are available in table form. The number of new patients seen was 1,632; the number treated for gonorrhea was 421 and for syphilis 15. The phone calls received by the "Hot Line" were 2,733; there were 37 requests for the names of private doctors, and there were 12 requests for educational materials and speakers. There were 113 reported new patients seen by private physicians. As a direct result of the campaign the Youngs Drug Product Corporation is planning a newspaper and pharmacy campaign this fall. The Colorado Congress of PTA plans VD education through local chapters. Teaching films and teacher workshops are being developed. Television and radio programs, which helped materially with the campaign, stimulated requests for information from service organizations, agencies and community groups, and Colorado Jaycees are interested in a statewide program. Leading citizens in Colorado Springs have contacted the State Health Department's Health Education section for help in implementing a mass media campaign.

Obviously the above program represents a positive response to the alarming increase in venereal disease everywhere. Affecting as it does chiefly the susceptible group aged 15 to 25, it is paricularly important to the present generation of young people and, of course, to the coming generations. The experience in this one campaign is applicable to all of the other states in the Rocky Mountain area and nationwide. Interest in the project has been stimulated and should grow. People are being organized and trained to become involved in speakers bureaus and Colorado State University's School of Journalism and Mass Communications is interested in developing a VD awareness program. The *Rocky Mountain Medical Journal* will do everything in its power to stimulate a growing interest in the territory that it serves and will cooperate in every way to further the good work.

Ascending aortic aneurysm*

Surgical considerations in management

Jean-Georges Poucel, MD, and W. Gerald Rainer, MD, Denver

ANEURYSMS OF THE thoracic aorta fall into distinct groups depending upon etiology, location and surgical approach. However, aneurysms of the ascending aorta lend themselves to meaningful analysis because of (1) uniformity of surgical approach; (2) considerations of aortic valve replacement; (3) consideration of cerebral perfusion and (4) management of the distal extent of the disease. An analytical review of our personal experience in 10 patients constitutes the basis for this report.

Clinical Material

Since 1963, 10 patients with ascending aortic aneurysms were seen and nine underwent surgery. There were six females and four males; ages ranged from 47 to 65 years (average 57.8 years).

Presenting Symptoms: Retrosternal pain was the presenting complaint in three patients, while symptoms due to aortic insufficiency predominated in three others. Transient ischemic attacks secondary to emboli prompted the diagnostic study in one patient. In another the aneurysm was discovered in investigation of typical angina pectoris. The last patient was completely asymptomatic despite a definite murmur of aortic insufficiency.

Etiology: Among the nine operated cases, five aneurysms were due to cystic medial necrosis. Leaflets from two of four aortic valves requiring replacement were involved with the same degenerative process. Two cases were clearly arteriosclerotic in origin and one was a traumatic aneurysm. One case of an iatrogenic aneurysm due to mucor infection[1] of an aortotomy is included.

*This study is from the Department of Surgery, St. Joseph Hospital, Denver, Colorado, and supported in part by a grant from Mallinckrodt Corporation. Dr. Poucel is Colorado Heart Association Fellow in Thoracic and Cardiovascular Surgery.

Fig. 1. Operative field after median sternotomy and vena caval cannulation. Note the very ectatic ascending aorta. The patient had cystic medial necrosis.

Diagnosis: In all patients, the diagnosis of aneurysm was made or confirmed by aortography. This was performed by retrograde femoral or brachial catheter approach using a pressure injector and suitable contrast material (such as Angio-Conray®).† There was morbidity or mortality secondary to arteriographic procedures in this group of patients. Coronary cineangiography was done as indicated by clinical findings.

Operative Technic: All cases were handled similarly. A median sternotomy was used, and after aortic control both vena cavae were cannulated. (Fig. 1) Extracorporeal circulation using femoral artery return and hypothermia (29°C-32°C) was employed in all cases. The aorta was cross-clamped proximal to the innominate artery and coronary perfusion was instituted after the aneurysm was opened. Cerebral perfusion was insured by brachio-cephalic and left carotid cannulations when necessary. The competency of the valve

†Angio-Conray®: Sodium iothalamate-USP 8090-Injection, Mallinckrodt. St. Louis, Missouri.

was evaluated by direct vision, and decision as to its replacement was made on its gross appearance. Aortic caged-ball prosthesis was used when necessary. Aortic continuity was accomplished by prosthetic graft replacement. In the majority of cases, proximal and distal aortic walls were reinforced with Teflon felt prior to the graft anastomoses. Rewarming to 36°C—37°C was accomplished with a heat exchanger. Defibrillation was used if necessary.

Results: Three patients did not survive the operative procedure (operative mortality 33 per cent) (Table 3). Massive hemorrhage was the cause of death in two cases, and left ventricular failure with uncorrectable low cardiac output occurred in the third. Both hemorrhagic episodes occurred at the time of sternotomy before adequate control could be obtained.

Hospital mortality was 22 per cent (two patients). Massive pneumonia was the cause of death in one patient, while sudden death, most likely due to cardiac arrhythmia occurred in the second. There have been no late deaths.

Four patients (44 per cent) have survived 1 to 3 years and are free of symptoms. Complications are tabulated in Table 2. The instance of massive cerebral ischemia was probably caused by inadequate cerebral perfusion; fortunately total recovery occurred over a period of 10 weeks. The late tracheal complication was a stomal stricture, which was handled conservatively.

Discussion

In view of the high risk to patients with any thoracic aneurysm (rupture, aortic valve disruption or dissection) surgical intervention is indicated and justified, and only those patients who have contraindications to any major surgical procedure should be denied the benefit of surgery.

The operative technic is well established,[2-11] and only specific details require elaboration, e.g. level of hypothermia, need to perfuse the coronaries, etc. In this series, the coronaries were perfused in each case. However, as has been our experience with simple aortic valve replacement, one can safely rely upon ischemic arrest by aortic cross-clamp for periods up to 50-60 minutes

TABLE 1

Mortality:	Hemorrhage	Left Ventricular Failure	Pulmonary	Arrhythmia	Total	Per Cent
Operative	2	1			3	33%
Hospital			1	1	2	22%
Late					0	

TABLE 2

COMPLICATIONS

Early:	
Cerebral Ischemia (Transient)	1
Azotemia	2
Tracheostomy	1
Late:	
Tracheal Stricture	1

with reasonable safety. In contrast to some other reports, we continue to prefer moderate hypothermia in all cases. Some authors[2] have mentioned coronary ostia re-implantation into the graft. This was not found necessary in our experience. Furthermore, it adds to the surgical procedure and risks, when it is usually possible and quite satisfactory to reinforce the proximal aortic edge with Teflon

Fig. 2. Preparation of the proximal and distal aortic walls using Teflon felt. Left coronary perfusion cannula is shown.

Fig. 3. Operative view after aortic valve replacement and completion of distal aortic anastomosis.

felt. (Figs. 2, 3) In so doing, the natural take-off of the coronary arteries is maintained, the dissected aortic wall can be reapproximated and the anastomosis strengthened.

In one instance a loosely knit dacron graft was used to replace the ascending aorta. This material which has a very high porosity, especially when not preclotted, was found unsatisfactory in the aortic position because of massive through-the-graft oozing of heparinized blood that would stop only after decannulation, protamine injection, and massive blood replacement.

Very puzzling at the time of surgery is the evaluation of the aortic valve itself. It is particularly difficult to decide which valve needs changing, and which criteria are to be used in making the decision. Other authors' experience or follow-ups are not infallible,[2,3,4] and the overall decision remains based on a subjective estimation of the valve leaflets approximation at the time of the aortotomy. This, of course, does not represent valve function under conditions of hemodynamics of a closed aorta. As a rule, we considered aortic valve replacement when the valve was proven incompetent by angiography (Fig. 4) and decided in favor of it when inspection revealed markedly dilated ring or leaflets involved with degenerative changes. The four patients who required aortic valve replacement presented classical gross appearance of cystic medial necrosis in the aorta (Fig. 5), and decision for replacement was based upon the amount of insufficiency. Of those, two had involvement of the valve leaflets characterized by disruption of the elastic fibers.

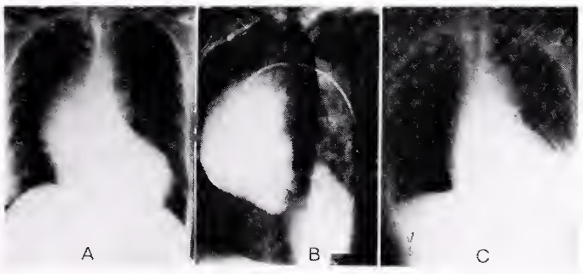


Fig. 4. (A) Pre-operative roentgenogram showing massive enlargement of the ascending aortic shadow. (B) Trans-femoral retrograde aortogram shows marked ectasia of aortic root and ascending aorta with aortic regurgitation and opacification of the left ventricle. (C) Post-operative chest roentgenogram after ascending aortic resection and aortic valve replacement.

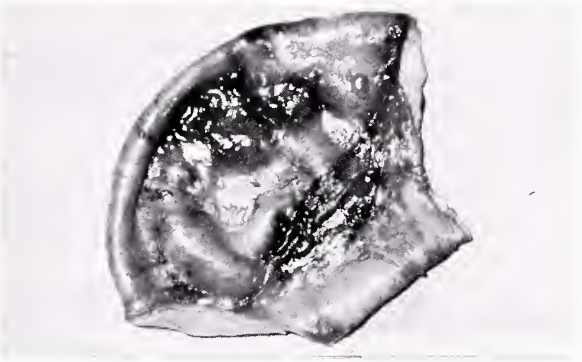


Fig. 5. Surgical specimen of a resected aortic aneurysm. Note that the postero-medial curvature is much shorter than the antero-lateral.

This observation raises the question of "prophylactic" aortic valve replacement in all aneurysms of the ascending aorta due to cystic medial necrosis. Annuloplasty and bicuspidation of the aortic root are appealing procedures,[3-4] but it appears difficult to appreciate the efficacy of these for the same reasons mentioned above. Not infrequently, residual and symptomatic aortic insufficiencies are reported following such technics.

A significant number of aneurysms of the ascending aorta extend onto the arch for a variable distance. A decision, then, has to be made regarding the distal limit of excision. The main complications result from difficulty in control of the usually poor quality arch and are related to problems associated with cerebral perfusion. Since the most common site of dissection is located in the first portion of the ascending aorta, it is felt that excision of that portion, with Teflon felt reinforcement of the aortic edges proximally and distally, is sufficient to eliminate the potential risk of dissection or rupture and to ensure the anastomotic strength. For these reasons, it is our policy to terminate the excision proximal to the innominate artery origin whenever possible.

Conclusion

A series of nine patients undergoing surgery for ascending aneurysm was reviewed. In five of these the aneurysm was the result of cystic medial necrosis. Total mortality (operative, hospital and late) was 55 per cent.

The use of Teflon felt reinforcement of the aortic walls is emphasized. The lack of adequate means of evaluation of the aortic valve

at time of surgery is discussed, and the question of "prophylactic" aortic valve replacement in aneurysm secondary to cystic medial necrosis is raised. In our experience resection should be limited to the ascending aorta, proximal to the innominate artery, whenever possible, even in the presence of modest distal involvement of the aortic arch. •

REFERENCES

[1] Rainer, W. G., Liggett, M. S., Quianzon, E. P., and Dirks, D. S.: Infected aortotomy due to mucor following aortic valve replacement. J. Thorac. Cardiovasc. Surg. 59:781, 1970.

[2] Groves, L. K., Effler, D. B., Hawk, W. A., and Gulati, K.: Aortic insufficiency secondary to aneurysmal changes in the ascending aorta: surgical management. J. Thorac. Cardiovasc. Surg. 48:362, 1964.

[3] Webb, W. R., Ecker, R. R., Holland, R. H., and Sugg, W. L.: Aortic aneurysm with aortic insufficiency. Repair without prosthesis. Amer. J. Cardiol. 26:146, 1970.

[4] Anabtawi, I. N., Yeh, T. J., Cornett, V., and Ellison, R. G.: Surgical treatment of aortic insufficiency due to medionecrosis and chronic dissection of ascending aorta. Ann. Thorac. Surg. 7:1, 1968.

[5] Liotta, D., Chafizadeh, G. N., LaMure, D. S., Messmer, B. J., Hallman, G. L., and Cooley, D. A.: Surgical treatment of aneurysm of the ascending aorta. Arch. Surg. 101:F34, 1970.

[6] Connolly, J. E.: Diagnosis and treatment of thoracic aneurysms. JAMA 179:615, 1962.

[7] Pearce, C. W., Weichert, III, R. F., and del Real, R.: Aneurysms of aortic arch. J. Thorac. Cardiovasc. Surg. 28:886, 1969.

[8] Bahnson, H. T., and Spencer, F. C.: Excision of aneurysm of the ascending aorta with prosthetic replacement during cardiopulmonary bypass. Ann. Surg. 151:879, 1960.

[9] Wheat, M. W., Boruchow, I. B., and Ramsey, H. W.: Surgical treatment of aneurysms of the aortic root. Presentation at Seventh Annual Meeting Society Thoracic Surgeons, Dallas, January 18-20, 1971.

[10] Spencer, F. C., and Blake, H.: A report of the successful surgical treatment of aortic regurgitation from a dissecting aortic aneurysm in a patient with the Marfan syndrome. J. Thorac. Cardiovasc. Surg. 44:238, 1962.

[11] DeBakey, M. E., Henly, W. S., Cooley, D. A., Morris, G. C., Crawford, S. E., and Beall, A. C.: Surgical treatment of dissecting aneurysm of the aorta. J. Thorac. Cardiovasc. Surg. 49:130, 1965.

Iatrogenic pulmonary edema*

A Review of Side Effects of Fluids, Drugs and Procedures

V. Alton Dohner, MD, Denver

Pulmonary edema may occur without evidence of cardiac or systemic disease. Iatrogenic factors are intravenous fluids, blood, narcotics, sedative-hypnotics, anesthetics and vaso-constrictors.

THE CONCEPT THAT pulmonary edema is usually caused by left ventricular failure may produce major errors in the differential diagnosis of breathlessness, wheezing, orthopnea or pulmonary radiographic infiltrates. Pulmonary edema, however, does occur in patients without evidence of cardiac or systemic disease and without apparent cardiac enlargement. Such pulmonary edema may result from the use of investigative or therapeutic agents and procedures.

The mechanisms through which various agents may produce or accentuate pulmonary edema are many and varied. According to the Starling hypothesis they include elevated capillary hydrostatic pressure, increased capillary permeability, increased capillary surface area, decreased plasma colloid osmotic pressure, increased alveolar surface tension and decreased lymphatic drainage.[1] Seldom do they act alone, and their interactions will vary in different situations. The physiologic mechanisms may be altered by external factors such as neurosurgical intracranial manipulations, negative pressure induced by inspiratory obstruction or by respirators, cardiac catheterization and multiple trauma.[2]

*From the Department of Medicine and The Webb-Waring Institute for Medical Research, University of Colorado Medical Center, Denver. The author was FHPS-USPHS Postdoctoral Fellow in Pulmonary Diseases, and is currently at the Medical Services Branch, Indian Health Service, PO Box 2143, Billings, Montana.

In reviewing cases reported in the literature it becomes apparent that a diagnosis of pulmonary edema due to drugs, fluids or blood is frequently made on the appearance of the chest roentgenogram alone. The descriptions given range through those of the stages of pulmonary edema due to left ventricular failure: (a) pulmonary vascular congestion with an increased size of the veins in the upper lung fields giving an "antler pattern"; (b) interstitial edema, a diffuse hilar haze, including Kerley "A" and "B" lines and subpleural edema, a diffuse reticular pattern (Kerley "C" lines) is also seen occasionally; and (c) intra-alveolar edema with fine miliary densities, coarse, fluffy or poorly defined mottling, or marked homogenous densities. The alveolar pattern has been called exudative edema when it results from the inhalation or aspiration of noxious substances (nitric oxide in nitrous oxide) or from the transcellular excretions from the blood of noxious agents (i.e., kerosene) absorbed in other parts of the body.[2-5]

The acute form of interstitial pulmonary edema characteristically either produces no changes in physical signs or precedes the onset of conventional clinical manifestations.[2,4-7] It is an interstitial infiltrate without symptoms which has often been called "pulmonary edema" in reports of adverse drug reactions. Without biopsies one cannot determine whether this is predominantly an inflammatory infiltrate, an eosinophilic infiltrate, an edematous interstitium, or a combination. Since many of the patients have no, or only a few non-specific, symptoms it is especially difficult to differentiate these processes.[7,8]

The mechanisms whereby procedures, drugs and fluids produce interstitial and intra-alveolar pulmonary edema may be one or more of the following: increased pulmonary capillary hydrostatic pressure, decreased plasma osmotic pressure, or altered capillary permeability.

INCREASED CAPILLARY PRESSURE

Left Ventricular Inefficiency: Interference with the pump function of the left ventricle may result from myocardial depression, tachycardia, increased peripheral resistance and persistent severe cardiac arrhythmias.

Myocardial contractility may be diminished by general and local anesthetic agents, and hypnotics and narcotics in greater than usual doses or in usual doses administered to sensitive individuals.[6,9-12] Procainamide, quinidine, xylocaine, propranolol or antazoline may also impair contractile efficiency depending on existing function. Phenothiazines have been implicated in one case of myocardiolysis with resultant cardiac failure and pulmonary edema. The quantity of citrate received with multiple transfusions may be sufficient to depress the myocardium unless concomitant calcium is administered.[13-16]

The left ventricular end-diastolic pressure may be elevated when the pulse rate, at rest, exceeds 150 beats per minute. The most obvious causes of tachycardia would be chronotropic drugs such as isoproterenol in treatment of cardiogenic shock, where excessive tachycardia would be detrimental. The vagal blocking agents such as atropine and scopolamine can also induce a tachycardia. Atropine as the sole cause of pulmonary edema is probably rare.[2] It might be more significant in patients with underlying cardiac disease or with fluid overload.

Dyskinetic contractions as caused by severe arrhythmias or improper artificial pacing can produce myocardial inefficiency and precipitate pulmonary edema. The direct cardiac actions of adrenergic drugs alone, or when used during hypoxemia, acidosis or general anesthesia may produce arrhythmias. Combinations of adrenergic drugs may also produce arrhythmias. General anesthetic agents such as chloroform, halothane or cyclopropane can induce such arrhythmias when used alone, or as noted above, with adrenergic agents.[2] Excessive thyroid hormone can also increase the production of irregularities by the adrenergic drugs.[17] The high potassium content of many angiographic media may also induce arrhythmias. To these irregularities may be added the atrioventricular block produced or aggravated by morphine.[18] Drug combinations thus become more problematic, especially in the patient with underlying heart disease.

Redistribution of Blood: Pulmonary blood volume and capillary pressure may be increased by a shift of blood from the peripheral circulation to the pulmonary vascular bed. Such a shift may occur with hypoxemia, the administration of vasoconstrictor drugs or as a consequence of intense, endogenously produced peripheral vasoconstriction. The latter may result from a too rapid infusion of cold blood or fluids.[18-20] An increased venous return and an increased central blood volume may also occur with excessive doses of thyroxine and thyroid extract.[17] It has been suggested that vasoconstrictor drugs or vasomotor nerves may produce constriction of the pulmonary veins contributing to the increased pulmonary capillary pressure.[21-24]

The role of venomotor tone in the shift of fluids is evident in head trauma or neurosurgical intracranial manipulations with a widespread adrenergic discharge and increased venous return.[24-25] Elevated intracranial pressure was found to cause both arteriolar and venular contraction, with the latter preceding and/or exceeding the former.[25]

Circulatory Overload: Fluid overload, due to excess transfusions of whole blood or to excessive infusions of electrolyte solutions or crystalloid plasma volume expanding agents, is an obvious cause of pulmonary edema.[2,8,26-30] Two factors, which are probably interrelated, are said to produce the edema: (a) the fluids produce an increased total blood volume with a secondary increase in pulmonary vascular volume and an increased transudation into the perivascular interstitium, and (b) the fluids lower the plasma protein content resulting in increased transudation.[2,8] A dilutional hypoosmolality and fluid overload may also result from the absorption of hypotonic irrigating fluids during bladder and prostate surgery.[2]

The use of mannitol and saline infusions for osmotic diuresis are more likely to precipitate pulmonary edema in patients with barbiturate overdose. This is due to the direct depression of the myocardium by the barbiturates and possibly vasospasm of pulmonary veins.[11,28]

Water soluble contrast media used intravenously have been reported to precipitate acute pulmonary edema with dyspnea, orthopnea, cough and fine crackling rales. These agents produce a sudden increase in blood volume with circulatory overload which may precipitate acute cardiac failure or initiate arrhythmias. In these patients a rapid decrease in the hematocrit is noted, which indicates dilution of the blood by extravascular fluids. The hematocrit change is accompanied by a rapid severe increase in the mean left atrial and left ventricular end-diastolic pressures.[30,31]

Circulatory overload due to excessive retention of sodium or water can result from the administration of certain drugs. This is most obvious with certain of the adrenocortical steroids,[32] especially in patients with cirrhosis, nephrotic syndrome and congestive failure. Excessive salt retention may also occur with estrogens, carbenoxolone sodium, salicylates, phenylbutazone and isocarboxazid therapy.[33-37] These latter causes of excess body fluid are most likely to precipitate pulmonary edema in patients with cardiac diseases. There is also evidence that the antihypertensive drugs such as guanethidine, hydralazine, diazoxide and piperidino-pyrimidine derivative (PDP) stimulate sodium retention and increased total body fluid volume.[36] This retention may be caused by changes in the peritubular interstitial pressure of the kidney or by altering the secretion rate of the "third factor" (Hormone X).[37] In addition, these drugs produce tachycardia and, unless sympathetic blockade is induced, may precipitate pulmonary edema.

Cardioversion has occasionally preceded pulmonary edema. The mechanism postulated is continued inefficient function of the left atrium with normal function of the right thus producing an increased pulmonary blood volume.[38]

Increased Capillary Permeability: An increase in capillary permeability may result from endotoxemia, histamine, antigen-antibody reactions, heparin, serotonin and acetyl choline.[2,4,5,8,39-41] Whether adrenocortical steroids or estrogens alter permeability of pulmonary capillaries has not been investigated except for the role of the former in hypersensitivity reactions and fat embolism.

"Organized fibrinous pulmonary edema" has been reported in patients treated with hexamethonium bromide, pentolinium, mecamylamine, and hydralazine. This appears to be an exudative response to a chemical alveolitis rather than edema due to repeated episodes of left heart failure.[42]

Hypoxemia has repeatedly been listed as a cause of increased permeability. Spencer[39] doubts that hypoxemia alone could induce pulmonary edema. However, hypoxemia may promote left ventricular failure[23], as well as produce large fluid volume shifts from the periphery to the lungs.[4] There is evidence that hypoxemia is an additive factor in precipitating the pulmonary edema due to hypervolemia.[23] In rabbits breathing 11 per cent O_2, the amount of Ringer Locke solution necessary to induce pulmonary edema was cut in half.

The hypersensitivity reactions in the lung vasculature are thought to be similar to allergic reactions in the systemic circulation such as angioneurotic edema and urticaria. These reactions alter the permeability and allow excessive transudation into the interstitium of the lung. Interstitial edema may result from reactions to transfusions or certain medications.[2,3,8,21,43]

Damage to the alveolar-capillary membrane may result from inhalation of noxious substances contaminating medical gases. Agents implicated are nitric oxide in nitrous oxide, or phosgene and chlorine in chloroform, trichlorethylene or other halogenated hydrocarbons.[2,43]

Comment

These considerations reaffirm the oft stated concept that pulmonary edema is a syndrome of many etiologies and does not always result from left ventricular failure. Patients without any underlying cardiovascular or other systemic disease may develop clinical or radiographic evidence of interstitial or intra-alveolar edema. This edema may develop during diagnostic or therapeutic procedures and during or following fluid or drug therapy.

Pulmonary edema may be produced through one of several mechanisms affecting water content of the lung. Each mechanism may independently increase or decrease the water storage rate in the lung. They are not independent of one another, however. The pulmonary capillary hydrostatic pressure determines the filtration coefficient (permeability) of the capillary membrane. The permeability of the membrane determines, to a degree, the colloid content of the perivascular interstitial tissue fluids as well as their hydrostatic pressures. The capillary hydrostatic pressure and the intra-alveolar pressures alter lymphatic flow through their joint action on the interstitial hydrostatic pressure and fluid content.

Pulmonary capillary hydrostatic pressure may be altered by an imbalance between the output of the right and left ventricles, by an increased total blood volume, or possibly by pulmonary venoconstriction. Fluid overload may also alter the capillary colloid osmotic pressure through dilutional effects. Thus the interdependence of these mechanisms becomes more apparent in attempting to delineate the cause of iatrogenic pulmonary edema. What role serotonin, prostaglandins, kinins, heparin, histamine, intracellular enzymes, neurohumoral mediators or other biologically active intracellular constituents play in lung water balance is at present unknown.

The factors most often implicated in iatrogenic pulmonary edema in surgical patients are intravenous fluids, general anesthetics, narcotics, vasoconstrictors and anticholinergic drugs. In medical patients the common causes are intravenous fluids, narcotics, sedative-hypnotics, adrenocortical steroids and anti-arrhythmic agents.

Summary

Pulmonary edema may occur in patients without evidence of cardiac or systemic disease and without apparent cardiac enlargement. Interstitial and intra-alveolar pulmonary edema may be produced by drugs, fluids or procedures through increased pulmonary capillary hydrostatic pressure, decreased plasma osmotic pressure or altered capillary permeability. The iatrogenic factors most often implicated are intravenous fluids, blood, narcotics, sedative-hypnotics, general anesthetics and vasoconstrictors. •

REFERENCES

[1] Greene, D. G.: Pulmonary Edema. In Handbook of Physiology, Respiration, Vol. II (Fenn, W. O., Rahn, H., editor) Washington, D. C., American Physiological Society, 1965, pp. 1585-1600.
[2] Adriani, J., Zepernick, R., Harman, W., et al: Iatrogenic pulmonary edema in surgical patients. Surgery 61:183-191, 1967.
[3] Ansell, G.: Radiological manifestations of drug-induced disease. Clin. Radiol. 20:133-148, 1969.
[4] Rigler, L. G., Surpenant, E. L.: Pulmonary Edema. Seminars roentgen. 2:33-48, 1967.
[5] Heitzman, E. R., Ziter, F. M., Jr.: Acute interstitial pulmonary edema. Amer. J. Roentgen, 98:291-299, 1966.
[6] Steinberg, A. D., Karliver, J. S.: The clinical spectrum of heroin pulmonary edema. Arch. Int. Med. 122:122-127, 1968.
[7] Weens, H. S., Gay, B. B., Jr.: Radiologic examination of the heart. In The Heart, Arteries and Veins (Hurst, J. W., Logue, R. B., editors) New York, McGraw-Hill, 1966, pp. 148-163.
[8] Harle, T. S., Kountoupis, J. T., Boone, M. L. M., et al: Pulmonary edema without cardiomegaly. Amer. J. Roentgen. 103:555-560, 1968.
[9] Etsten, B., Li, T. H.: Hemodynamic changes during thiopental anesthesia in humans. J. Clin. Invest. 34:500-510, 1955.
[10] Silber, R., Clerkin, E. P.: Pulmonary edema in acute heroin poisoning. Amer. J. Med. 27:187-192, 1959.
[11] Schonfeld, M. R.: Acute pulmonary edema caused by barbiturate poisoning. Angiology 15:445-453, 1964.
[12] Medical News: Myocardial lesion pattern observed with phenothiazine therapy. JAMA 202:27, 1967.
[13] Wessler, S., Avioli, L. V.: Propranolol therapy in patients with cardiac disease. JAMA 206:357-371, 1968.
[14] Bath, J. C. J. L.: Treatment of cardiac arrhythmias in unanesthetized patients. Role of adrenergic beta receptor blockage. Amer. J. Cardiol. 18:415-425, 1966.
[15] Prichard, B. N. C., Gillam, P. M. S.: Treatment of hypertension with propranolol. Brit. Med. J. 1:7-16, 1966.
[16] Herndon, E. G., Jr., Wegner, N. K.: The effects of endocrine dysfunction and metabolic disorders on the heart. In The Heart, Arteries and Veins op. cit., pp. 1058-1094.
[17] Hurst, J. W.: Iatrogenic problems and heart disease. In The Heart Arteries and Veins, ibid., pp. 1116-1120.
[18] Morris, R. H., Trachtenberg, H. A.: Physiological alterations induced by blood warming during light ether anesthesia. Anesthesiology 29:205-206, 1968.
[19] Glaser, E. M., Berridge, F. R., Prior, K. M.: Effects of heat and cold on the distribution of blood within the human body. Clin. Sci. 9:181-186, 1950.
[20] Phillips, E. Fleishner, F. G.: Pulmonary edema in the course of a blood transfusion without overloading the circulation. Dis. Chest. 50:619-623, 1969.
[21] Harris, P., Heath, D.: The Human Pulmonary Circulation. London, E & S Livingstone, 1962, pp. 113-126.
[22] Daly, I. D. B., Hebb, C.: Pulmonary and Bronchial Vascular Systems. London, Arnold, 1966, pp. 289-315.
[23] Visscher, M. B., Haddy, F. J., Stephens, G.: The physiology and pharmacology of lung edema. Pharmacol. Rev. 8:389-433, 1956.
[24] Berman, I. R., Ducker, T. B.: Pulmonary, somatic and splanchnic circulatory responses to increased intracranial pressure. Ann. Surg. 169:210-216, 1969.
[25] Arvanis, C., Libretti, A., Jona, E., et al.: Pulmonary reflexes in pulmonary edema? Amer. J. Physiol. 180:130-136, 1957.
[26] Russell, J. T.: The dangers of overhydration during and after operations. So. Afr. Med. J. 42:1076-1078, 1968.
[27] Dykes, M. H. M., Fuller, J. E.: Post-transfusion pulmonary edema in surgical patients: Etiology and therapeutic use of trimethaphal camphorsulfonate (Arfonad). Anesthesiology 30:101-106, 1969.
[28] Morgan, A. G., Benett, J. M., Polak, A.: Mannitol retention during diuretic treatment of barbiturate and salicylate overdosage. Quart. J. Med. 37:589-605, 1968.
[29] Bjork, L.: The osmotic effects of Urografin 76% and Isopaque 60% in angiocardiography. Amer. J. Roentgen: 98:922-926, 1966.
[30] Foda, M. T., Castillo, C. A., Corliss, R. J., et al.: The intravascular pressure response in man to contrast substance used for angiocardiography. Amer. J. Med Sci. 250:390-394, 1965.
[31] Ansell, G.: Complications of adrenocortical therapy: A radiological survey. J. Fac. Radiol. 9:113-126, 1958.
[32] Sutliffe, J.: Pulmonary edema due to salicylates. Brit. J. Radiol. 28: 314-316, 1955.
[33] Prescott, L. F.: Antipyretic analgesic drugs. In Side Effects of Drugs, Vol. VI (Meyler, L., Herxheimer, A., editors). New York, Excerpta Medica Foundation, 1968, pp. 102-107.
[34] Child, J. A.: Massive oedema and ascites during treatment with anti-depressant drugs. Postgrad. Med. J. 45:288-289, 1969.
[35] Horwich, L., Galloway, R.: Treatment of gastric ulceration with carboxolene sodium. Brit. Med. J. 2:1274-1277, 1965.
[36] Earley, L. E., Daugharty, T. M.: Sodium metabolism. New Eng. J. Med. 281:72-86, 1969.
[37] Wardener, H. E., de: Control of sodium reabsorption. Brit. Med. J. 3:611-616, 1969.
[38] Lindsay, J.: Pulmonary edema following cardioversion. Amer. Heart J. 74:434-435, 1967.
[39] Gould, D. M., Torrance, D. J.: Pulmonary edema. Amer. J. Roentgen. 73:366-374, 1955.
[40] Clements, J. A.: Pulmonary edema and permeability of alveolar membranes. Arch. Environ. Health 2:280-283, 1961.
[41] Heard, B. E.: Fibrous healing of old iatrogenic pulmonary edema ("Hexamethonium lung"). J. Path. Bact. 83:159-163, 1962.
[42] Perry, H. M., Jr., Oneal, R. M., Thomas, W. A.: Pulmonary disease following chronic chemical ganglionic blockage. Amer. J. Med. 22:37-47, 1957.
[43] Leading Article: Contaminated cylinders of nitrous oxide. Brit. Med J. 3:191-192, 1967.

A medical potpourri

Compiled by Andrew M. Babey, MD, Las Cruces, New Mexico

1. "Enthusiasm is the greatest asset in the world. It beats money and power and influence." CHESTER, Henry, "Thoughts . . . on the Business of Life," Forbes, April 1, 1971, p. 74.

2. "We are usually mistaken in esteeming men too much; rarely in esteeming them too little." LESZCYNSKI, Stanislaus, "Thoughts . . . on the Business of Life," Forbes, April 1, 1971, p. 74.

3. "Many medical textbooks state that the skin is pink in carbon monoxide poisoning. Indeed, Harrison (1970) states that 'the most characteristic sign of carbon monoxide poisoning is the cherry colour of skin.' There is no reason to doubt that this is true at necropsy, but it is exceptional in a living patient. It has not been observed once in 400 patients with CO poisoning admitted to this unit. Such patients are commonly cyanosed and pale." MATTHEW, Henry. "Acute Poisoning: Some Myths and Misconceptions," British Medical Journal, March 6, 1971, p. 519.

4. "The aid of the electroencephalogram has been invoked in the current controversy over the definition of death, attention being paid to the value of a flat or isoelectric tracing. . . . Isoelectric tracings in hypnotic overdose, however, may persist for 23 hours, with eventual recovery. . . ." Ibid. p. 520.

5. "It is often considered that in unconscious patients fixed dilated pupils are an indication of irreversible brain damage and denote a serious prognosis. In poisoned patients this is not so, even after respiratory and/or cardiac arrest. Resuscitative measures should therefore never be abandoned simply on the evidence of such pupils. Further, it should be remembered that drugs with an atropine-like action in overdosage, such as the tricyclic antidepressants, antihistamines, and glutethimide, can produce coma with fixed dilated pupils from which full recovery can be made." Ibid. p. 520.

6. "It is also apposite to comment on the so-called 'universal antidote'—a mixture of charcoal, magnesium oxide, and tannic acid—which has been used in the treatment of poisoning since 1904. This concoction has long been thought to have some power in reducing the effects of poison. In fact its three constituents have a mutually inactivating effect. Universal antidote is thus neither an antidote nor is it universal (Henschler and Kruetzer, 1966); indeed it could itself give rise to poisoning." Ibid. p. 521.

7. "No man can be expert in every field, and the time has come for forensic pathologists and pharmacologists to cease writing about the clinical effects and treatment of acute poisoning in humans. Physicians themselves require to be far more critical of published work and of the methods they use to treat their patients. The editors of medical journals could help by being more discriminating in accepting articles on poisoning." Ibid. p. 522.

8. "Universities and other places of learning are prone to a disease—pedantry. The chief cause of pedantry is insulation of mind. The interest narrows, the curiosity vanishes, and the mental processes become endlessly repetitive. Because universities tend to worship at the improbable shrine of useless knowledge, they like to cut themselves off from the world at large and retire into an artificial world of their own creation. Intellectual revolutionaries like Galileo and Darwin are naturally unacceptable." PICKERING, Sir George, "Medicine and Society—Past, Present, and Future," British Medical Journal, January 23, 1971, p. 192.

9. "It is time that death should be recognized as worthy of being celebrated as is birth. I hope that if any people assemble after I die they will be given champagne." Ibid. p. 193.

10. "Should geriatrics remain what it tends to be at present, the specialty which deals with those patients that no other doctor wishes to care for? Is the geriatrician, in George Adams' celebrated phrase, merely a 'clinical undertaker'?" Physician or Clinical Undertaker, THE LANCET, May 15, 1971, p. 1002.

11. "Acid phosphatase is elevated in the serum of only 24 per cent of patients with nonmetastatic prostate carcinoma, but in 81 per cent of these patients with skeletal metastases. The specificity of acid phosphatase in prostate carcinoma is related to substrate, and elevations are observed in many other diseases when orthophosphate esters other than beta-glycerophosphate are used. However, with beta-glycerophosphate as substrate, elevations are rarely observed other than in prostatic disease or in certain myeloproliferative disease where modest elevations are related to the white cell or platelet count." Biochemical Procedures in Different Forms of Cancer, Medical Clinics of North America, Vol. 55, No. 3, Saunders Co. p. 619.

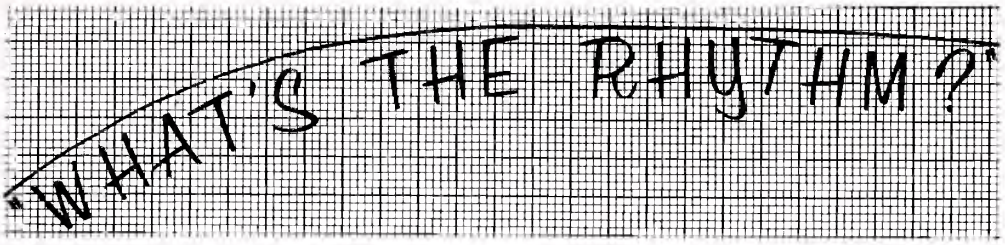
12. "In primary tumors of bone, as well as in metastatic disease of bone, alkaline phosphatase is elevated when the tumor is predominantly osteoblastic. In breast carcinoma, most cases of bony metastases are osteolytic, and alkaline phosphatase levels are usually in the normal range or slightly elevated. In prostatic carcinoma most of the metastatic lesions are osteoblastic, and the serum alkaline phosphatase is elevated to levels 4 to 10 times the upper limit of normal. Modest elevations of alkaline phosphatase are observed in about one third of patients with multiple myeloma, and more extensive elevations are seen in over 95 per cent of patients with adenomas or carcinoma of the parathyroid. In liver disease, elevations of alkaline phosphatase are observed in patients with extrahepatic obstruction of the biliary tract and in patients with intrahepatic metastases." Ibid. p. 620.

13. "Certain substances or procedures may seriously interfere with the demonstration of amebae for periods of one to two weeks. These include the administration of enemas to obtain specimens or to prepare the patient for sigmoidoscopy, barium sulfate for roentgenographic examination, antidiarrheal preparations containing kaolin or heavy metals, and antibiotic or chemotherapeutic agents. The indirect hemagglutination test is positive in 90 per cent of cases of amebic colitis with tissue invasion." K. JUNIPER, Jr., "Medicine," edited by Chester S. Keefer and Robert Wilkins, 1970, p. 511.

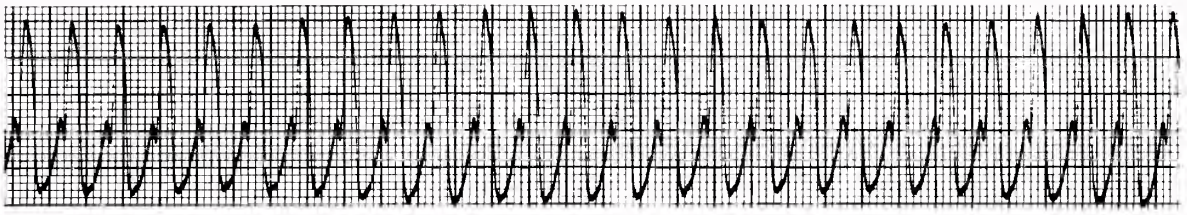
14. "It is ironical that some of those most violently opposed to the war are equally vigorous in their attempts to make drug abuse easier. The cure of drug addicts under 25 is virtually impossible, and of addicts over 25 statistically disappointing. Hence, as in dealing with an infectious epidemic disease, prevention becomes most important, but this is impossible in our permissive society." ALTSCHULE, Mark, M. D., Editor-in-Chief, Medical Counterpoint, June 1971, p. 6.

15. ". . . when face to face with a controversial arrhythmia, one should keep Rosenbaum's aphorism in mind, 'every self-respecting arrhythmia has at least three possible interpretations.' MARRIOTT, Henry, J. L., M. D., St. Petersburg, Florida, Communications to the Editor, CHEST, June 1971, p. 697.

16. "Widespread disease in old people is too readily attributed to carcinomatosis in the absence of histological confirmation, and such patients are inadequately investigated for tuberculosis. Generalized tuberculosis in the elderly may lack the characteristic features of generalized military tuberculosis. They present with a severe systemic illness, insidious in onset and progress, in which general malaise, wasting, and fever occur in the absence of miliary mottling and choroidal tubercles. The tuberculin test is sometimes negative, and bacteriological or histological proof of the disease is usually difficult to obtain. This cryptic disseminated tuberculosis is best diagnosed by a therapeutic trial of isoniazid with paramino salicylic acid." Leading Articles, "British Medical Journal," May 22, 1971, p. 419.



Prepared by Alan E. Lindsay, MD,* Salt Lake City



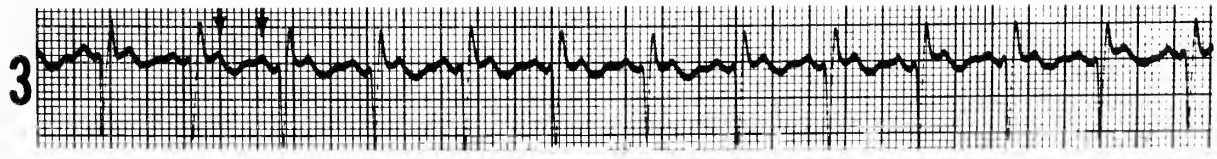
How would you treat the tachycardia depicted in Fig. 1 (V_1) above? Lidocaine? Cardioversion? Quinidine? From a purely morphological point of view the rhythm is a broad-QRS tachycardia at a rate of 240/min. with clock-like regularity, RBBB QRS morphology and no visible atrial activity. Possibilities include ventricular tachycardia and supra-ventricular tachycardia (ectopic atrial or atrial flutter) with RBBB. These observations are not sufficient to allow us to arrive at a precise diagnosis. When the problem is put into a clinical context, however, a reasonably accurate guess can be made.

The patient was a 52-year-old woman with no known heart disease who was taking no medicines. She had a past history of paroxysmal atrial fibrillation. She seemed to tolerate the tachycardia well without evidence of perfusion failure or clouding of the sensorium.

The rate of 240 was faster than that ordinarily seen in ventricular tachycardia and the RBBB morphology favored a supraventricular origin with aberrant ventricular conduction. On the basis of these observations, she was given 0.5 mg, digoxin intravenously. Fig. 2 (below) was taken three minutes later. Now atrial activity at 240/min. can easily be seen when 2:1 AV response occurs. The aberrant conduction is apparently rate-related, as the QRS complexes terminating longer RR cycles exhibit normal intraventricular conduction. Fig. 3, taken 10 min. after the medication, shows sustained 2:1 AV conduction and normal QRS complexes. Five min. later the rhythm converted to a normal sinus mechanism.

The diagnosis, then, is SUPRAVENTRICULAR TACHYCARDIA WITH ABERRANT CONDUCTION OF THE RBBB TYPE. The rate of 240 suggests atrial flutter as the basic atrial mechanism. Even in normal hearts it is very unusual to see 1:1 conduction ratios with so rapid a rate. In years past this rhythm occasionally occurred during attempted quinidine conversion of atrial flutter because quinidine enhanced AV conduction through its vagolytic action.

The ideal therapy for this tachycardia would have been D.C. cardioversion, particularly if the patient had had a recent myocardial infarction and was tolerating the tachycardia poorly (i.e., shock, pulmonary edema, mental confusion, etc.). This therapeutic approach would have relieved us of diagnostic guesswork but at the same time would have prevented our ever knowing the true nature of the tachycardia. •



This year . . . as every year . . . we look forward with great anticipation to the happiest of holidays. Hope and joy are more meaningful to the world than ever before. Hope for the fulfillment of those words, "Peace on Earth . . . Good Will to Men." Joy in the promise of a brighter future for everyone. It is our fervent wish that this Christmas will bring us closer to This Goal and to the true spirit of brotherly love, that we may remain a free people, living without fear in the land we love. May the blessings of this holiday season be with you throughout the coming year.

Geo. Berbert & Sons, Inc.

1717 Logan Street **Telephone 255-0408**

DENVER, COLORADO 80203

1903-1971—our 68th anniversary

Postdialysis convulsions*

Treatment with calcium infusion

Robert Whang, MD, Donald Draney, MD, and Michael Ryan, MD, Albuquerque, New Mexico†

Two cases of recurring postdialysis convulsions are reported. No response to usual anti-convulsant therapy was noted. Intravenous calcium infusion was followed by prompt cessation of the convulsions. In view of the increasing clinical use of peritoneal dialysis, the problem of recurring postdialysis seizures may become more prevalent.

THE DIFFERENTIAL DIAGNOSIS of grand mal seizures occurring in the immediate postdialysis period includes the possibility of the dialysis disequilibrium syndrome,[1,2] hyperglycemia,[3,4] hypoglycemia[5] relative alkalosis and hypocalcemia,[6] as well as other causes of seizures not necessarily related to dialysis such as hypertensive encephalopathy, cerebral vascular accidents, and cardiac arrhythmias. This report concerns two patients with repetitive and recurring grand mal seizures immediately following termination of peritoneal dialysis. In both instances intravenous calcium infusion was followed by prompt cessation of the previously recurring seizures.

CASE REPORTS

Case 1. A 10-year-old female was admitted on 3/16/64 in uremia. Her diagnosis was chronic pyelonephritis and congenital absence of the right kidney. On 3/25/64 serum electrolytes were normal except for a total CO_2 content of 6.6 and a BUN 320 mgm%. Peritoneal dialysis was begun on 3/26/64 with peritoneal dialysate (1.5% glucose) containing 45 milli-equivalents lactate per liter. After 42 exchanges (500 cc's per exchange), the patient had several successive grand mal convulsions. Sodium Luminal and Dilantin were administered with cessation of seizure activity. The BUN on 3/29 was 132 mgs%, calcium 4.9 mgs%. Following the initial dialysis the patient again became progressively uremic and was dialyzed for the second time on 4/22/64. Seizures recurred on 4/24 while on dialysis. A total of 23 seizures were recorded from 6:30 p.m. on the 24th until 6 a.m. on the 25th. These seizures recurred despite administration of Dilantin 15 mg IM/q6h and phenobarbital 60 mgs q6h; reserpine 0.5 mg followed by 1 mg IM/q8h was administered for the possibility of hypertensive encephalopathy.

Because of recurring seizures despite this therapy, 4 ampules of 10% calcium gluconate (18 mEq calcium) in 500 cc's 5% dextrose and water was started at 6:30 p.m. on the 25th which was continued for the next 11 hours. In contrast to the previous 12 hours during which time 23 seizures had been observed, only three seizures occurred following institution of intravenous calcium infusion and none occurred after 7:30 p.m., one hour after starting the calcium infusion. The patient progressively improved and all anti-convulsive therapy and reserpine was discontinued. She subsequently expired on 5/1/64 in uremia. Postmortem examination revealed a small contracted left kidney and congenital absence of the right kidney. Microscopic examination revealed changes consistent with chronic pyelonephritis. No abnormalities were noted in the brain.

Comment: Although the possibility of dialysis disequilibrium syndrome to account for the recurrent seizures cannot be dismissed in this patient, the correlation in time of cessation of seizures with the administration of calcium is noteworthy. In contrast to the 23 seizures recorded prior to calcium infusion, only three occurred following institution of this treatment (18mEq calcium) and all occurred within the first hour after institution of calcium therapy. On a weight basis, the 4 ampules

*From the Department of Medicine, University of New Mexico School of Medicine and the VA Hospital, Albuquerque, New Mexico.
†Dr. Whang is Associate Professor of Medicine, University of New Mexico School of Medicine and Chief Metabolic Service, Veterans Administration Hospital, Albuquerque, New Mexico. Dr. Draney and Dr. Ryan were formerly Residents in Medicine, University-affiliated Hospitals, Albuquerque, New Mexico.

of calcium gluconate (360 mgs) in a patient weighing 46 pounds was equivalent to approximately 1080 mgs (54 mEq) in a 150 pound patient.

Case 2: Predicated on the experience gained with the first patient, this second patient was similarly treated for the problem of recurrent seizures in the immediate postdialysis period. A 33-year-old female with rapidly progressively glomerulonephritis was begun on peritoneal dialysis for the second time on 9/28/68 because of uremic symptoms. Peritoneal dialysate (1.5% glucose) containing 45 mEq per liter lactate was used throughout. Dialysis with 70 liters was carried out and was discontinued at 9 a.m. on 9/30/68 following clinical and biochemical improvement. Upon discontinuation of the dialysis the patient began to experience repetitive grand mal seizures totaling 15 in number from 9 a.m. until 8:30 p.m., a period of 11½ hours. Seizures recurred during the day despite Dilantin, phenobarbital, reserpine and paraldehyde administration. The pattern of repetitive seizures in the postdialysis period paralleled the course in the first case.

The following studies were initiated following onset of seizures in this patient in an attempt to determine the etiology: (1) Mg 3.4 mEq's per liter, ruling out hypomagnesemia, (2) blood glucose 120 mgm%, ruling out either hyper- or hypoglycemia, (3) diastolic blood pressure 100 mms of mercury, ruling out the likelihood of hypertensive encephalopathy, (4) EKG demonstrating normal sinus rhythm, ruling out arrhythmias as a cause of these seizures, (5) pH 7.41 and total calcium 4.5 mEq liter. Despite the unremarkable total calcium value and because of the repetitive and continuing seizures 5 ampules of 10% calcium gluconate (450 mgs calcium) diluted in 50 cc's 5% dextrose in water was infused intravenously over a 90 minute period beginning at 8:30 p.m. There was no recurrence of seizures subsequent to beginning calcium infusion. The patient subsequently had twice weekly peritoneal dialysis without recurrence of seizures. She expired on 1/10/69 following cardiac arrest.

Comment: As in the first case, repetitive postdialysis seizures stopped following calcium infusion. Although the pH was within normal limits, as was the total serum calcium, a shift from ionized to bound calcium due to the correction of the acidosis with dialysis may have resulted with consequent seizure activity, which was rectified by calcium infusion[7]. This point was not ascertained in the present study since ultrafiltrable calcium was not determined in our patients.

Discussion

In both of these cases prolonged and repetitive grand mal seizures occurred following cessation of peritoneal dialysis. Because no clinical response resulted from the usual anticonvulsant drugs, intravenous calcium was administered on an empirical basis. With calcium infusion cessation of the recurring seizures was noted in both patients. In neither case was reactive hypoglycemia, hyperglycemia, cardiac arrhythmia nor hypomagnesemia considered accountable for the repetitive seizures. That the dialysis disequilibrium syndrome, related to the delayed movement of cellular urea in response to lower extracellular concentrations may have been operative in these cases cannot be altogether ruled out. However, rather prompt cessation of the previously recurrent seizures following calcium administration diminishes this possibility.

Increased serum lactate levels following peritoneal dialysis with lactate containing solutions have been reported.[8,9] Both of our patients were in fact dialyzed with lactate-containing dialysate. Metabolism of the accumulated lactate in the postdialysis period may have further alkalinized the patients resulting in relative hypocalcemia and seizures. Prompt cessation of the recurring generalized seizures in the postdialysis period in response to intravenous calcium administration supports this possibility.

You Can Order

REPRINTS

of any feature or advertisement appearing in

The Rocky Mountain Medical Journal.

Orders must be placed within 15 days after date of publication. Minimum charge applies for 100 copies or less.

The cost is very reasonable.

For further information write to—

The Rocky Mountain Medical Journal

1809 East 18th Avenue

Denver, Colorado 80218

Summary

Two patients with repetitive grand mal ures following calcium administration discribed. Little or no response was observed to the usual anticonvulsant drugs. Prompt cessation of seizure activity followed intravenous calcium infusion. These observations lend support to the hypothesis that metabolism of the elevated blood lactate levels following peritoneal dialysis with lactate-containing solutions results in further alkalinization, relative hypocalcemia and seizures.

These observations suggest that intravenous calcium infusion may be helpful in the treatment of convulsions following peritoneal dialysis with lactate-containing solutions. However, the mechanism underlying the calcium-responsive postdialysis seizures cannot be elucidated by this report and awaits clarification of issues such as the state of ionized calcium in the postdialysis period. •

ACKNOWLEDGMENT

The authors wish to thank Drs. L. Delambre and J. Griffin for permission to report Case 1 and Miss Naomi Hagan for secretarial assistance.

REFERENCES

1 Rosen, S. M., O'Connor, K., and Shaldon, S.: Hemodialysis disequilibrium. Brit. Med. J. 2:672, 1964.
2 Wakim, K. G.: The pathophysiology of the dialysis disequilibrium syndrome. Mayo Clin. Proc. 44:406, 1969.
3 Potter, D. J.: Death as a result of hyperglycemia without ketosis: a complication of hemodialysis. Ann. Int. Med. 64:399, 1966.
4 Whang, R.: Hyperglycemic, hyperosmolar coma—a complication of dialysis. Rocky Mt. Med. J. 66:80, 1969.
5 Rigg, G. A., and Bercu, B. A.: Hypoglycemia—a complication of hemodialysis. New Eng. J. Med. 277:1139, 1967.
6 Miller, R. B., and Tassistro, C. R.: Peritoneal dialysis. New Eng. J. Med. 281:945, 1969.
7 Danesh, J. N. Z., Walker, C. H. M., and Matheis, N. P.: The relation of postdialysis plasma calcium and magnesium to the dialysate levels and to changes in blood pH. New Eng. J. Med. 282:771, 1970.
8 Lee, H. A., Hill, L. F., Hewitt, V., Ralston, A. J., and Berlyne, G. M.: Lactic acidemia in peritoneal dialysis. European Dialysis Transplantation Proceedings. 4:150, 1967.
9 Dixon, S. R., and Irvin, R. O. H.: Blood lactate levels after peritoneal dialysis with fluid containing lactate ions. Proc. Univ. Otago Med. Sch. 47:6, 1969.

Hearing loss caused by prenatal rubella*

J. Albert Browder, MD, Albuquerque, New Mexico

The relationship of maternal rubella to the frequency of childhood hearing loss in non-epidemic periods is not clearly defined. Here is an analysis of the problem in New Mexico.

IN MOST STUDIES THE FREQUENCY of maternal rubella as an etiology of hearing loss in childhood has been based on maternal histories rather than serologic studies. Since such reports may miss up to half of involved children, we are just beginning to appreciate the magnitude of this problem. Serologic studies have been based on populations from epidemic periods where up to 70 per cent of idiopathic deafness has been attributed to congenital rubella.[1] This survey attempts to assess the frequency of congenital rubella hearing loss in preschool children receiving auditory training, using positive serologies as an index of prenatal rubella.

Information available suggests the Pacific Coast and several Rocky Mountain states, including New Mexico, had no major epidemic in 1963-64.[2] Several other states did have disease of epidemic proportions in 1965 though this was not reflected in reports from New Mexico where the years 1965, 1966, and 1967 showed similar incidence of approximately 25 to 35/100,000 per year (Table 1). This is far short of epidemic proportions. The accuracy of these figures is questionable, but they suggest that in New Mexico no large outbreak occurred as has been seen in most parts of the United States.

*From the Mental Development Center, University of New Mexico, Department of Pediatrics, Albuquerque, New Mexico.

Table 1
Reported Incidence of Rubella
New Mexico

Year	No. Cases
1960	142
1961	41
1962	26
1963	109
1964	351
1965	272
1966	113
1967	309
1968	134

Source:
Rubella Surveillance, June 1969, No. 1 Department of Health, Education, and Welfare.
"The variable number of cases reported during specific years from states in the same geographic region and with similar demographic characteristics suggests the sporadic and incomplete nature of rubella reporting and reemphasize the limitations of these data."

Materials and Methods of Study

The population studied included all preschool children in auditory training programs because of hearing loss in 1969, in Albuquerque, New Mexico. There were 43 children less than six years of age who attended either the Albuquerque Preschool Division of the New Mexico School for the Deaf or the Albuquerque Hearing and Speech Center. These are public-supported programs serving children from all socio-economic levels. Preschool children were selected because of the importance of detection in this age group, the availability of the students in these training programs for study, and the validity of the serologic tests in this age group offering presumptive evidence of intrauterine disease.[3] This population of children would exclude the very mild or unilateral hearing loss not needing an auditory program, the undiagnosed or not-yet-referred younger child, or the severely deaf and multiply handicapped child who might be in a residential setting.

The parents were asked to indicate, when known, the cause of their child's hearing loss, the occurrence of maternal rubella during the pregnancy, and the occurrence of any rash or other illness during the pregnancy (not recognized as rubella). Of the 43 children, 41 had serologic tests. Two families refused to permit a rubella blood test on their children. One was a three-year-old female whose only problem was a profound hearing loss. Her mother had a vague illness with cervical adenopathy at two and one-half months gestation. The other was a two and one-half year old male with a myelomeningocele and hydrocephalus with a moderate hearing loss, and a maternal history of rubella at four and one-half months. Hemagglutination Inhibition (HI) titers, serologic tests described by Stewart,[4] et al, were performed on the 41 children by the New Mexico State Health Laboratory, Virology Division, either on fresh or fresh-frozen sera. Titers above 1:10 were considered positive.

Results

Among the 43 children in the program (Table 2), there were 14 whose families indicated a history of maternal rubella as the assumed etiology for their hearing loss. An additional mother had a known exposure without recognized disease. There were 17 other cases of unknown etiology. Nineteen of the 41 children tested (46 per cent) had positive rubella titers. Of these positives, there were nine mothers with histories of rubella in their pregnancies, and one with only a recognized exposure. In contrast three mothers with positive prenatal histories had children with negative serologies, emphasizing the difficulty of establishing a clinical diagnosis of rubella.

Among the 17 cases of hearing loss of unknown etiology, nine (53 per cent) had positive titers (Table 2). These included four instances of maternal rashes of unknown cause and the child whose mother was exposed but was asymptomatic. Only one seropositive child had a history of a vague rash which

Table 2
Maternal Rubella by History vs.
Positive Rubella Serology in Child

		Ratio of Positive Serologies
Unknown etiology		
Rubella exposure without clinical disease	1	1/1
Maternal rash—not recognized as rubella	10	4/10
Unknown etiology without maternal rubella exposure or possible symptoms	6	4/6
TOTAL	17	9/17
Maternal rubella by history	14*	9/12
Other recognized causes	12	0/12
TOTAL	43	41

*Only 12 had serologic studies.

may represent postnatally-acquired antibody.

The degree of hearing loss in the rubella positive group varied and is classified as mild in one (20-40 db), moderate in three (40-60 db), severe in three (60-75 db), and profound in six (75-100 db). The remaining six have different levels in the two ears, but all have at least moderate loss in the better ear. Diagnosis of hearing loss was made in all children before they were age four, four children in the first year, six in the second year, six in the third year, and three between ages three and four years. Such delays in diagnosis could permit some yet-undetected, preschool children with hearing loss to be present in the community. Ages of diagnosis were comparable in the seronegative group except for four cases of familial deafness where a diagnosis was established in early infancy. A more detailed study of the other children is reported elsewhere.[5]

Other defects were indicated in four children who were seropositive. Of these, three have congenital heart disease, two cerebral palsy, and one eye defects. Of these four with handicaps, three reported slow mental development, while one child otherwise normal has slow motor development. One also has a central communication disorder and has been reported previously.[6] In the 15 rubella positives without other handicaps, the families acknowledged no developmental problems. In the 22 children of the seronegative group, one has a strabismus with a vision defect and a gait problem, two others have a gait problem, and three have slow mental development. None of this latter group are among those with histories of maternal rubella.

Comments

Of the 19 seropositive children, five were born in New Mexico in 1964 and six were born in 1965, while one was born in late 1963 and one in 1967. Older (1963) children would not be included in this study. The cause for a higher number of positive serologies in the older children is unclear. With the increase in age, hearing loss is more likely to be diagnosed and referrals made. Other studies of rubella have indicated a greater loss of hearing with increasing age in the preschool child,[7,8] making diagnosis more likely. Though not reflected in reported incidence (Table 1) this suggests there may have been a greater frequency of disease than recognized. Four children in this group were born in epidemic areas and subsequently moved to this state. Two other children were born outside the state in non-epidemic years.

When rubella serologic studies are carried out other than during pregnancy and early infancy, they can only be presumptive, since current tests do not otherwise permit separation of prenatally and postnatally acquired antibodies. The validity of such tests, then, as an indicator of congenital disease, depends on the age of the child, lack of history of postnatal disease, and the prior incidence of infection in the community. The incidence of acquired antibodies among preschool children ordinarily is low, presumably because of limited case contracts. Distribution curves from one study in Florida indicated incidence of about 25 per cent in five-year-olds, four years after an epidemic.[9] Assuming as high an incidence as this (25 per cent), the probability of getting 19 or more positives out of 41 is $<.005$, according to the binomial distribution. This strongly supports the concept that congenital rubella is a major cause of hearing loss in this present study.

A small control group exists within the study population. These are the twelve children with other known cause for hearing loss. Their lack of histories of rubella-like illnesses or any positive serologies supports the assumption that the positive serologies, when obtained, indicate intrauterine disease. Susceptibility among those with known causes for hearing loss would be assumed to be equal to the idiopathic group; hence, an infection in these training classes should have occurred equally throughout the population.

No effort has been made to compare the incidence of rubella seropositives found in these programs with a control population outside the two centers. Children in close group contact in programs such as these increase the risk of exposure to rubella several times over a random, preschool population. Therefore such controls as used by Karmody[1] have little meaning for predicting the incidence of postnatal infections in closed populations. A more comparable control population would be other preschool nursery groups and would

have been a desirable part of this study. Limitations of staff and funds prevented this part of the investigation.

The high incidence of rubella among the idiopathic hearing loss group is consistent with experience in other studies where up to half of the children involved with congenital rubella have had negative maternal histories.[10] Such cases appear to account for a significant percentage of children with unknown causes of hearing loss.[1,11] Previously, Robinson[12] reported 52 per cent of hearing loss in children to be of unknown etiology and only 18 per cent to be due to congenital rubella as determined by maternal history. The results obtained here suggest that such studies conducted without the benefit of serologic tests might miss up to 50 per cent of rubella children. Even in the absence of such tests, rubella as a cause of deafness in one center in Sweden has ranged from 0-40 per cent in the period 1944-1959,[13] while among 1,468 deaf children in California (1954-1964) about nine per cent have had a positive maternal history for rubella.[14]

It is now recognized that the antibody titers as measured in these children may decrease or even convert to negative in cases of congenital disease.[15,16] Hence, the three cases with negative titers and positive maternal histories might still represent congenital rubella, as could some of the other seronegative children. This decrease in the serologic reaction does not occur in infection occurring after birth. Studies also suggest a few children with congenital rubella fail to develop demonstrable antibodies.[10] Hence, one might suspect that a study such as this would fail to identify some cases of congenital rubella.

Conclusions

The population available for study is small for drawing conclusions regarding the general incidence of rubella hearing loss in relation to other causes. However, these results suggest that a significant per cent of children with hearing loss of unknown etiology may be due to congenital rubella. The present study further confirms the lack of dependability of maternal histories in identifying congenital rubella. The findings emphasize the need to consider rubella as an etiology in all young children with hearing loss. •

ACKNOWLEDGMENT

The author expresses his appreciation to the Virology Laboratory, New Mexico Department of Public Health, and to Daniel E. Johnson, Ph.D., Director, for the cooperation in performing the rubella titers in this study.

REFERENCES

1 Karmody, C. S.: Subclinical maternal rubella and congenital deafness. New Eng. J. Med. 278:809-814, 1968.

2 United States Department of Health, Education, and Welfare, Public Health Service, National Communicable Disease Center, Rubella Surveillance, No. 1:1-17, June 1969.

3 Weller, T. H., Alford, C. A., and Neva, F. A.: Retrospective diagnosis by serologic means of congenitally-acquired rubella infections. New Eng. J. Med. 270:1039-1041, 1964.

4 Stewart, G. I., Parkman, P. D., Hopps, H. E., et al.: Rubella virus hemagglutination inhibition test. New Eng. J. Med. 276:554-557, 1967.

5 Browder, J. A.: Hearing loss in preschool New Mexico children. Rocky Mtn. Med. J., Vol. 68, No. 9, Sept. 1971.

6 Browder, J. A., and Stallcup, T. A.: Congenital Rubella, report of a case presenting late manifestations. Rocky Mtn. Med. J., Vol. 64, No. 9, Sept. 1967.

7 Giles, J. P., Cooper, L. Z., and Krugman, S.: The rubella syndrome. J. Ped. 66:434-437, 1965.

8 Sever, J. L.: Viral teratogens: a status report. Hospital Practice 5:75-83, 1970.

9 Witte, J. J., Karchmer, A. W., Case, G., et al.: Epidemiology of rubella. Amer. J. Dis. Child 118:107-111, 1969.

10 Bordley, J. R., Brookhouser, P. E., Hard, J., et al.: Prenatal rubella. Acta. Otolaryng. 66:1-9, 1968.

11 Matkin, N. D., Peterson, W. H., and Peck, J. E.: Maternal rubella and hearing loss: a preliminary report on findings from the 1964 epidemic. Conn. Med. 31:850-854, 1967.

12 Robinson, G. C., Brummitt, J. R., and Miller, J. R.: Hearing loss in infants and preschool children. II Etiologic considerations. Pediatrics 32:115-124, 1963.

13 Barr, B., and Lundstrom, R.: Deafness following maternal rubella; retrospective and prospective studies. Acta. Otolaryng. 53:413-423, 1961.

14 Vernon, M.: Characteristics associated with post-rubella deaf children; psychological, educational, and physical. Volta Review 69:176-185, 1967.

15 Hardy, J. B., Level, J. L., and Gilkeson, M. R.: Declining antibody titers in children with congenital rubella. J. Ped. 75:213-220, 1969.

16 Kenrick, K. G., Slinn, R. R., Doman, D. C., et al.: Immunoglobulins and rubella virus antibodies in adults with congenital rubella. Lancet. 1:548, 1968.

CAMPBELL'S SOUPS IN DIABETIC DIETS*

RECOMMENDATIONS FOR PLACING CAMPBELL'S SOUPS* INTO EXCHANGE LISTS

* These recommendations are based on a *one cup portion* when prepared according to directions on the label. If milk is used in the preparation, use part of your daily requirement.

Exchange Substitution for 1 Bread and ½ Fat	Exchange Substitution for 1 Meat and 1½ Bread
Tomato	Hot Dog Bean
Tomato, Bisque of	Split Pea with Ham
Tomato Rice, Old Fashioned	
Exchange Substitution for ½ Bread and ½ Fat	**Exchange Substitution for ¼ Meat and ½ Bread**
Asparagus, Cream of	Chicken Gumbo
	Chicken Noodle

Campbell's Soups are appetizing and enjoyable and, because of the many varieties available, offer your diabetic patients the opportunity to plan and enjoy more interesting and appealing meals.

*To obtain copies of "Recommendations for Placing Campbell's Soups Into Exchange Lists," suitable for distribution to patients, write to Campbell Soup Company, Dept. 300, Campbell Place, Camden, N.J. 08101.

There's a soup for almost every patient and diet ...for every meal and, it's made by Campbell

What is a Medical Management Consultant?

He is a businessman who specializes in the business side of medical practices. He has no products to sell, so he can bring an outside, unbiased-expert, third-party point of view to help you interpret your practice results and produce improvements & progress.

A medical management consultant helps you realize your practice goals and personal financial aspirations more quickly because his specialized experience eliminates your trial & error.

Medical management consultants sell no insurance, no investments, no forms, no systems. They work only on a fee-for-service basis for physicians. Their only income is from the professions which they serve.

Our firm is nationwide, but our home is in the Rocky Mountains — in Denver. There is a PMS consultant in your area. Just give him a call:

Albuquerque, New Mexico	Herb Hughes	(505) 298-5809
Albuquerque, New Mexico	Joe Listek	(505) 298-5809
Billings, Montona	Harry Miller	(406) 248-6203
Boulder, Colorado	George Hunt	(303) 444-3149
Colorodo Springs, Colorodo	George Schrameyer	(303) 598-2042
Denver, Colorodo	Dick McMullen	(303) 986-2394
Denver, Colorodo	Jim Meodor	(303) 623-7165
Denver, Colorodo	Ed Rorden	(303) 623-7165
Ogden, Utah	Doyle Allen	(801) 394-5828
Santo Fe, New Mexico	Don Hughes	(505) 983-1314

Or clip the coupon below and drop it in the mail to our Central Office in Denver.

Have your President drop in to see me.

Name _____ Telephone _____

Address _____ City _____ State _____ Zip _____

PRACTICE MANAGEMENT SERVICES

601 BROADWAY DENVER, COLORADO 80203

MONTANA

Physicians Honored

At the recent meeting of the American College of Surgeons in Atlantic City, New Jersey, four Montanans were inducted as fellows of this specialty society. Roger H. Brus, MD, Libby, Harris D. Ranson, MD, Helena, Stuart A. Reynolds, MD, Havre, and Vern G. Tolstedt, MD, Helena, were elected to fellowship in the college and were inducted during cap-and-gown ceremonies at the Clinical Congress of the American College of Surgeons.

J. Jerome Wildgen, MD, Kalispell, was installed as president of the American Academy of Family Physicians at its annual meeting in Miami Beach on October 4. Doctor Wildgen, who graduated from the University of Kansas School of Medicine in 1949, had served as president-elect of the Academy since September, 1970, and was a member of its Board of Directors for three years previously. He is a charter diplomate of the American Board of Family Practice, a consultant in family practice to the United States Air Force, and a clinical instructor in Family Medicine at the University of Washington School of Medicine.

Medical Mission

Paul Carlson, MD, Bozeman, a member of the staff of the Student Health Service of Montana State University, recently completed a two-month medical mission in Viet Nam under programs sponsored by the A.M.A. and A.I.D. During his mission, Doctor Carlson was primarily responsible for supervision of the public health facilities in some of the pacified Montgnard villages. Later Doctor Carlson served a one-month medical mission in an Ethiopian hospital under the auspices of the General Conference Baptist Mission Board.

Newton Optical Company

Catering to Medical Profession Patronage

309 16th Street
Denver 80202

GUILD Rx OPTICIANS

Telephone
534-8714

Information is needed **NOW!**

for Listing in the **1972 Directory of Members**

New listings (approved by your State Society) or corrections of listings which appeared in the 1971 Directory must be received by the Journal Office not later than January 3, 1972 in order to meet the Deadline for publication in the new Directory. (One office address ONLY can be carried).

My medical specialty is: (Circle correct specialty below. If limited, indicate by *)

ADM A ANES AM CD CHP CRS D DR FOP FP G GE GP GPM GS IM NS N OB OBG OM

OPH ORS OTO PATH PATH-CP PD PDA PDC PMR PN PS P PH PUD R TR TS U

MEDICAL SPECIALTIES (as approved by AMA)

ADM	Administrative Medicine	**GPM**	General Preventive Medicine	**PDA**	Pediatric Allergy
A	Allergy	**GS**	General Surgery	**PDC**	Pediatric Cardiology
ANES	Anesthesiology	**IM**	Internal Medicine	**PMR**	Physical Medicine and Rehabilitation
AM	Aviation Medicine	**NS**	Neurological Surgery		
CD	Cardiovascular Disease	**N**	Neurology	**PN**	Psychiatry and Neurology
CHP	Child Psychiatry	**OB**	Obstetrics	**PS**	Plastic Surgery
CRS	Colon and Rectal Surgery	**OBG**	Obstetrics and Gynecology	**P**	Psychiatry
D	Dermatology	**OM**	Occupational Medicine	**PH**	Public Health
DR	Diagnostic Radiology	**OPH**	Ophthalmology	**PUD**	Pulmonary Diseases
FOP	Forensic Pathology	**ORS**	Orthopedic Surgery	**R**	Radiology
FP	Family Practice	**OTO**	Otolaryngology	**TR**	Therapeutic Radiology
G	Gynecology	**PATH**	Pathology	**TS**	Thoracic Surgery
GE	Gastroenterology	**PATH-CP**	Pathology and Clinical Pathology	**U**	Urology
GP	General Practice	**PD**	Pediatrics		

Mail to: Rocky Mountain Medical Directory
1809 E. 18th Avenue
Denver, Colorado 80218

NAME .....

OFFICE ADDRESS .....

CITY ..... STATE ..... ZIP .....

TELEPHONE .....

MEDICAL SCHOOL NOTES

University of Colorado Medical Center

A delegation of eight Georgia legislators and medical educators recently visited the University of Colorado Medical Center to study its innovative programs in the training of new types of health-service professionals. In the group were six legislators, a legislative staff counsel and two physicians representing the Georgia medical profession and the Board of Regents of the University System of Georgia. The delegation visited Denver seeking information on the Colorado program for presentation to the Georgia General Assembly and for possible implementation in Georgia colleges and universities.

The CU Medical Center has received considerable national attention in professional and educational circles for its new approaches toward easing the health manpower crisis by the training of pediatric nurse practitioners, school nurse practitioners, child health associates and other more traditional allied health professionals.

The Georgia group displayed particular interest in the CU School of Nursing's baccalaureate and master's degree programs in professional nursing education, as well as the innovative curricula and allied health programs.

* * * * *

Final fall enrollment totals at the University of Colorado Medical Center show 1709 undergraduate students, trainees and advanced degree candidates registered for the 1971-72 academic year in medical, nursing and paramedical courses. This compares with 1564 students and trainees on the medical campus at this time a year ago, an increase of 145 or 9.3 per cent.

Enrollment in the School of Medicine increased by 33 to a total of 474, up 7.5 per cent, according to Miss Isla Montgomery, Medical Center registrar. This includes the largest freshman class, 127 students, in the history of the school.

Dr. Gordon Meiklejohn, acting dean of the medical school, said the new increase in the number of medical students has been made possible by the completion late last spring of the 10-year physical expansion program at the CU Medical Center. The additional facilities, as they were completed, permitted the school to enlarge its entering class size from 85 students to 105 in 1968, to 115 in 1969 and to 125 this year.

The School of Nursing has enrolled 113 graduate and 272 undergraduate students this fall for a total registration of 385, an increase of 37.5 per cent over last year. Dr. Betty Jo Hadley, acting dean of the nursing school, explained that the undergraduate nursing curriculum now is a three-year course concentrated entirely at the Medical Center and the CU Denver Center downtown, and students must take two years of liberal arts pre-nursing studies at Boulder or in another accredited university or college before being accepted into the school. The school formerly was divided between the Medical Center and the Boulder campus and offered a four-year course, with freshmen enrolled at Boulder.

Miss Montgomery reported the Medical Center division of the University's Graduate School this fall has enrolled 149 candidates for M. S. and Ph.D. degrees in the biomedical sciences and health administration, plus 38 advanced, non-degree students. The total graduate enrollment of 187 reflects an increase of 8.7 per cent.

The Medical Center has on its rolls this fall 69 interns, 313 resident physicians and 99 clinical fellows. Comparable totals for last autumn were 67, 324 and 97.

University of New Mexico School of Medicine

Dr. David H. Law, professor and vice chairman of the UNM Medical School's Department of Medicine and chief of medical services at Veterans Hospital here, has been chosen as one of 15 medical investigators throughout the United States working on a special type of parenteral nutrition—the provision of foodstuffs by vein to people who are unable to eat. The scientists represent the specialties of internal medicine, general surgery, pediatrics, biochemistry and physiological chemistry.

Dr. Law says this treatment substitutes prepared basic compounds, which can be delivered by intravenous injections, for the ordinary foods which must be eaten and digested in order to maintain good nutrition. The technic functions as an "artificial intestine."

The 15 scientists recently were called together for a symposium in Bermuda sponsored by the McGaw Laboratories of Glendale, California who are developing new products to be used in this form of treatment.

* * * * *

ARTIFICIAL EYES

Plastic eyes and glass eyes specially made to fit the most difficult cases. An expert eye-maker is in our office at all times to give your patients the satisfaction they must have. In business since 1906.

Write or phone for full details.

DENVER OPTIC COMPANY

330 University Bldg. • 16th and Champa • 825-0229

Denver, Colorado 80202

Two beds in Los Alamos Hospital's coronary care unit are remotely monitored 24 hours a day by specially trained staff at Bataan Memorial Hospital in Albuquerque. Telephone lines connect the patient's oscilloscope in Los Alamos directly to a monitor in Albuquerque, 100 miles away. The Los Alamos Hospital was linked to Bataan Hospital in October. During the next year, other small hospitals in the state will be tied to central monitoring stations and ultimately, it is hoped, a network of monitors will cover the state.

Remote monitoring of heart patients began in New Mexico more than a year ago as a project of the Regional Medical Program. It is the second such system in the nation, being modeled after Oklahoma's network where 18 remote hospitals are linked to central monitoring stations. Through studies done on the Oklahoma system, mortality rates for heart patients have been found to be significantly lower through use of the remote monitors, and use of the monitors in New Mexico is indicating the same positive results.

Three hospitals in New Mexico are now hooked up to central stations. A two-bed cardiac care unit from University Heights Hospital, Albuquerque, and a one-bed unit from Cibola Hospital, Grants, are monitored at Bernalillo County Medical Center.

The remote monitors give a tremendous advantage to the smaller hospitals since they free a comparatively limited staff to perform other necessary duties without ever being more than a few seconds away from their patients. The system is also economical, offering the best in cardiac care at a much lower cost than hiring an around-the-clock specialized staff at the smaller hospitals. The hospitals pay for the cost of the oscilloscopes, while RMP pays the initial cost for installing the telephone lines.

Training for cardiac care nurses is provided by RMP through intensive four-week courses regularly scheduled during the year, and one-week courses held at remote hospitals. Refresher courses on detecting heart rhythm disorders and special instruction on use of the monitoring equipment are also given.

* * * * *

Dr. Morton M. Kligerman, chairman of the Department of Radiology at Yale University School of Medicine since 1958, has been chosen to head the Cancer Research and Treatment Center at the University of New Mexico effective March 1, 1972.

The noted radiologist will have two other major positions in connection with the Cancer Center position. Dr. Robert S. Stone, dean of the UNM School of Medicine, has named him chief of the Division of Radiation Therapy in the medical school's Department of Radiology, and Dr. Harold M. Agnew, director of Los Alamos Scientific Laboratory, also has announced the appointment of Dr. Kligerman as assistant director for radiation therapy of the laboratory.

Tax-free Cash!

Here's great news about a Disability Income Plan that can pay you up to $1,000.00 a month in TAX-FREE CASH when you're sick or hurt and can't work.

This remarkable plan is offered to you at a special savings as a member of the Colorado Medical Society. It is underwritten by Mutual of Omaha, the leader in its field.

You choose the coverage best suited to your requirements from among 34 different plans—each one tailored to meet a special need.

This is the kind of protection every doctor should have. So send today for full details. Complete and mail the coupon below today.

Mutual of Omaha®
The Company that pays
Life Insurance Affiliate: United of Omaha
Mutual of Omaha Insurance Company
Home office: Omaha, Nebraska

Colorado Division Office
2nd Floor, Railway Exchange Bldg.
Denver, Colorado 80202

Please rush me full details on the Colorado Medical Society's Disability Income Protection Plan.

Name.....

Address.....

City.....State.....Zip.....

3-6-9-12-71

The New Mexico Legislature has appropriated $1-million for construction of a Cancer Research and Treatment Center to be built on the UNM medical campus, predicted to open in late 1973. Another $100,000 has been appropriated for planning and staffing the center.

The Cancer Center will make heavy use of the $56-million Los Alamos meson facility now under construction. The facility is expected, after several years of research and clinical tests, to be used to treat cancer patients with pi-mesons—a short-lived nuclear particle. This type treatment will be especially useful for figuratively "exploding" tumors lying deep within the body, which cannot be reached by other current treatment methods. The Cancer Center, however, will be able to provide other forms of treatment such as surgery, radiation and chemotherapy so that Center patients will receive the best appropriate treatment.

Dr. Kligerman has served as president of the American Society of Therapeutic Radiologists, and of the Association of University Radiologists, and also is a member of the Royal Society of Medicine, London.

He currently is chairman of the Cancer Research Training Committee of the National Institutes of Health. He has helped edit the Year Book of Radiology, and the Radiation Research Journal. He has been honored by Temple University with a Distinguished Alumnus Award, and received the Silver Medallion Award at the 200th anniversary of the founding of the College of Physicians and Surgeons.

* * * * *

Dr. Bruce Ferguson has joined the Department of Obstetrics and Gynecology at the University of New Mexico School of Medicine as a senior research associate, especially interested in the health problems of the Navajo Indians. He has received an $18,000 career development grant from the Brush Foundation for the current year.

His clinical work with the obstetrics-gynecology department is in the post-partum and family planning clinic, the pregnancy interruption clinic, and the vasectomy clinic. Dr. Ferguson also is working with the Medical School's Maternity and Infant Care Project in an effort to set up a coordinated state-wide family planning program.

His interest in the Navajo people began while he was working on the reservation and became aware of the tremendous health problems of the Navajos, many of which are aggravated by rapid population growth and large family size.

Dr. Ferguson is studying the economic costs of the rapid population growth rate—how it hurts the tribe's economic development, and what the costs will be for providing services to this growing population in the future. His study model has been used in India and other countries with rapid population growth.

Dr. Ferguson also is studying Navajo infant mortality rates and how they are affected by the age of the mother, the number of previous children, and the age of her last child.

University of Utah Medical Center

An Argon Laser photocoagulator, one of the newest instruments utilized for treatment of certain eye diseases, is now in use at the University of Utah's Medical Center. The $30,000.00 laser, maintained and operated by the Division of Ophthalmology, is a gift from a local philantropist. It is the only instrument of its kind between Denver and the West Coast.

A common complication of diabetes, diabetic retinopathy, is the growth of excess vessels within the retina and out into the eye chamber. The Argon Laser is used to destroy these vessels to prevent the possibility of hemorrhage and loss of sight.

Macular degeneration, a common manifestation of old age, is a deterioration of the vessels within the retina associated with hardening of the arteries. Serous fluid from the blood then "leaks" into the retina clouding the macula, the area of the retina responsible for central vision, and leading to blindness. The Argon Laser is used to destroy these degenerating vessels.

Since the retina of the eye is richly vasculated, destruction of these few troublemaking vessels does no actual damage to the eye itself.

* * * * *

Dr. Frank G. Moody has been named chairman of the Department of Surgery at the University of Utah College of Medicine. Dr. Moody replaces Dr. Keith Reemtsma, who resigned to accept a position at Columbia University.

Dr. Moody was previously professor of surgery and director of the Gastrointestinal Division of the University of Alabama Medical Center in Birmingham. He has been a member of the Alabama faculty since 1966.

Dr. Moody received his B.A. degree from Dartmouth College in 1953 and his M.D. degree in 1956 from Cornell University Medical College. He interned at New York Hospital and Cornell University Medical Center, 1956-57. He served as assistant resident, and later resident surgeon at the Cornell Medical Center between 1957 and 1963.

The distinguished surgeon has also served as a research fellow at the Cardiovascular Research Institute and as an advanced research fellow with the American Heart Association, both located at the University of California Medical Center in San Francisco.

Before joining the Alabama faculty, he was assistant professor of surgery at the University of California Medical Center.

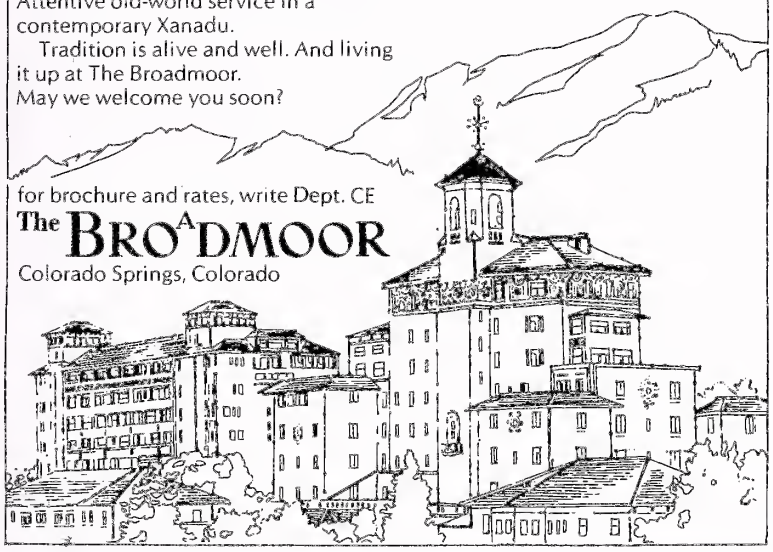
THE BROADMOOR. ONE OF THE NICEST THINGS ABOUT ITS PRESENT IS ITS PAST.

If you're attuned to patrician service and luxury, you might as well be a good sport about it.

The Broadmoor surrounds your leisure with sports. Two great 18-hole championship golf courses. Horses. Winter and water skiing. Swimming pools. Olympic-level all-season ice skating. Tennis.

And, of course, accommodations in the grand manner. Seven superb restaurants. Smart shops. Attentive old-world service in a contemporary Xanadu.

Tradition is alive and well. And living it up at The Broadmoor. May we welcome you soon?



for brochure and rates, write Dept. CE

The BROADMOOR

Colorado Springs, Colorado

MAKE SOMEONE HAPPY. YOU.

That, after all, is the whole point of your ski vacation. And here's elegant assurance you'll make your point.

Comfort and service in the grand resort tradition. The finest in Vail at the center of Vail. Adjoining the gondola terminal—your luxury room or apartment is complemented by The Lodge's own heated pool, bar, lounge and outstanding dining facilities.

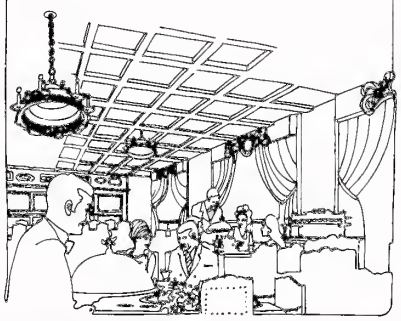
For your Vail reservations, try The Lodge at Vail first.

Because, of course, it is.

The LODGE at Vail

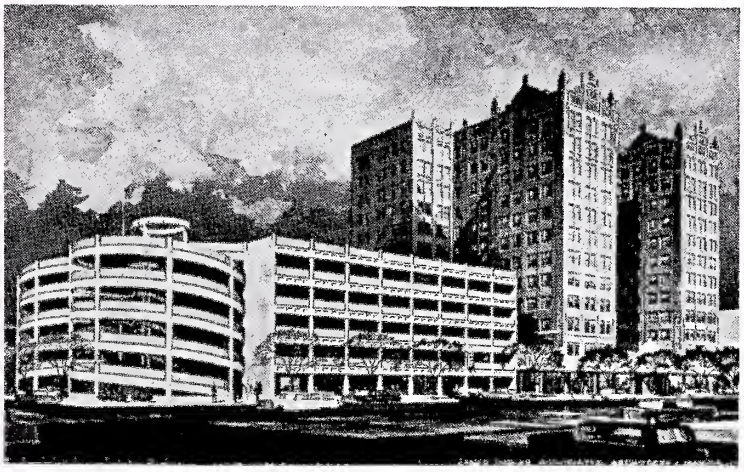
IN THE BROADMOOR MANNER

Donald L. Elisha, General Manager
Dept. EE, Vail, Colorado 81657



CENTRALLY LOCATED

For the medical and dental professions



REPUBLIC BUILDING CORPORATION

306 REPUBLIC BUILDING, DENVER, COLORADO 80202
PHONE 534-5271

Here, in the heart of downtown Denver, the Republic Building is the best-known Medical-Dental Center in the Rocky Mountain West, complete with 24-hour operation, X-ray; pathological and dental laboratories, pharmacy, drug and supply stores.

With the completion of the new 500-car, self-service parking facility, the Republic Building—designed and operated for the medical and dental professions—offers the ultimate in patient-convenience and medical facilities.

Space is available. Ask for illustrated brochure.

OBITUARIES

Montana

John Miller Nelson, MD, died in San Clemente, California, on September 13, 1971.

Doctor Nelson was born in Clarkfield, Minnesota, on June 4, 1900. He received his B.A. degree from St. Olaf College in 1923 and his M.D. degree from the University of Minnesota Medical School in 1929. He then moved to Stevensville, Montana, for the general practice of medicine and in 1932 moved to Missoula where he continued his general practice of medicine until 1966.

Doctor Nelson served as city-county health officer for a number of years and was active as a member of a number of committees of the Western Montana Medical Society and of the Montana Medical Association. In 1966 he moved to California and became a member of the staff of Leisure World Hospital in Laguna Beach, where he provided medical care to the elderly and became interested in geriatric problems.

Roy Whitfield Key, MD, Missoula, died at the Veterans Administration Hospital in Sheridan, Wyoming, on September 7, 1971.

Doctor Key was born in Weesatchie, Texas, on February 27, 1898. He graduated from the University of Texas Medical Branch in Galveston in 1930. He completed his internship at St. Paul's Hospital in Denver and immediately thereafter undertook a residency in ophthalmology and otorhinolaryngology. Upon completion of his residency, he practiced in Kentucky for one year, in Texas for three years, and in Washington for three years. In 1940 he moved to Missoula and was associated with the staff of the Western Montana Clinic; later in 1940 he was called to active duty with the United States Navy. Upon his discharge in 1946 as a captain in the Navy, he returned to Missoula to engage in the practice of his specialty. He continued the private practice of his specialty in Missoula until his retirement in 1970.

Doctor Key was a fellow of the Montana Academy of Oto-Ophthalmology and a member of the Western Montana Medical Society, the Montana Medical Association, and the American Medical Association. He served with distinction as president of the Western Montana Medical Society.

Wyoming

Ralph C. Gramlich, MD, 86-year-old retired Cheyenne physician who had practiced medicine for more than 25 years, died at a Cheyenne nursing home October 24.

Born in Omaha, Nebraska, Doctor Gramlich had a general practice at David City, Nebraska before moving to Cheyenne in 1940 where he continued to practice until retirement several years ago.

The physician was a member of the Wyoming State Medical Society, First United Methodist Church, Union Pacific Old Timers' Club, Kiwanis Club and Acacia Lodge No. 11.

His wife preceded him in death in 1966. Survivors include a son, John Gramlich, MD, a Cheyenne surgeon; a daughter, Joan G. Webb of Norfolk, Virginia; and a brother, Howard of Port Ontario, Canada.

Wilson F. McDill, MD, 93-year-old retired physician, died October 29 at the Veterans' Hospital in Salt Lake City where he had been a patient for the past two years.

Born in Afton, Iowa, Doctor McDill came to southwestern Wyoming in 1907 and practiced medicine in several coal camps near Rock Springs, Superior, Dines and Kemmerer. In 1927 he moved to Lyman where he continued his practice until 1960 when he retired and moved to Evanston.

The physician was a member of the Wyoming State Medical Society, American Medical Association, Presbyterian Church, VFW and American Legion Post No. 36.

Survivors include his widow, Eve, of Evanston; a son, Robert, also of Evanston; two daughters, Mrs. Phyllis Mates of San Francisco and Mrs. Blanche Furlong of Salt Lake City; 2 stepsons, 4 stepdaughters, 23 grandchildren and 27 great-grandchildren.

PICKER Medical Products

3890 ELM STREET — TEL. 388-5731 — DENVER, COLORADO 80207

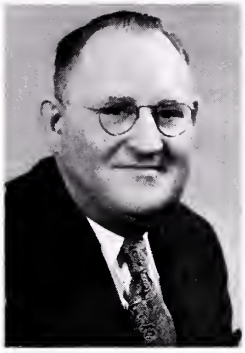
Offices also in:
Colorado Springs, Colorado
2236 Glenwood Circle, 635-8768

Salt Lake City, Utah
21 Kensington Street, 487-7519

Albuquerque, New Mexico
113 Sierra Dr., S.E., 255-1288

Medical X-Ray Equipment
Accessories & Film
Nuclear Equipment

Colorado



Archer C. Sudan, MD, the AMA's first "General Practitioner of the Year", died October 28 in his home east of Boulder of a heart attack. He was 79. Doctor Sudan was widely known throughout the nation, as well as in foreign countries, due the publicity he received when he was presented with a gold medal at the American Medical Association meeting held in Cleveland, Ohio, in 1948 designating him as Family Practitioner of the Year. He was the first physician ever to receive this award.

Doctor Sudan was born in Lake County, South Dakota—he lived a very colorful life. Coming to Colorado alone at the age of 16 he worked as a cowhand on a ranch near Kremmling. He loved the life and the people there so much that he resolved to return someday to this part of the country. Doctor Sudan attended Chicago University where he received a BA degree in 1917 and MA and MS degrees a year later.

Doctor Sudan served in World War I as a machine gunner in Europe. After the war, he matriculated in Rush Medical College, where he obtained his MD degree in 1926. He then returned to Colorado where he interned at Denver General Hospital and was resident physician until 1927. After a fishing trip to Kremmling, Colorado (population 538, altitude 7332 feet, and no doctor within a radius of 22 miles), he decided that was the place he would like to "hang up his shingle" to practice medicine and surgery and hunt and fish in his spare time.

Doctor Sudan knew the winters there were rugged, often with two or three feet of snow on the ground. House calls would have to be made on horseback or by sleigh, but he loved the people and the people loved him; he continued to practice there for 20 years. Doctor Sudan was President of the Colorado Medical Society in 1946-1947. He moved to Denver in 1947, and from 1951 to 1956 was Superintendent of the State Training Homes at Wheat Ridge and Grand Junction.

His first wife, Florence Shepard of Englewood, Illinois, whom he married in 1924, died in February 1950. On November 17, 1955, he married Martha Hawkins of Colorado Springs. Doctor Sudan retired in 1960 and moved to Boulder.

Surviving him in addition to his widow, are a son Dr. Archer C. Sudan, Jr. of Denver; three stepdaughters, Mrs. Duane Johnson and Mrs. John Shattuck, both of Boulder, and Mrs. Dan Shadrich of Anchorage, Alaska; two sisters, Mrs. Edythe Hutson of Russelville, Arkansas, and Mrs. Bertha Troxell of Chicago, and three grandchildren.

THE EMORY JOHN BRADY HOSPITAL

401 Southgate Road **COLORADO SPRINGS, COLORADO 80906** **MElrose 4-8828**

E. JAMES BRADY, M.D., *Medical Director*

CAMPBELL F. RICE, *Superintendent*

Francis A. O'Donnell, M.D.
Robert W. Davis, M.D.
Richard L. Conde, M.D.
Paul A. Draper, M.D.
Charles W. McClellan, M.D.
James E. Edwards, M.D.

For the care and treatment of Psychiatric disorders.

Individual and Group Psychotherapy and Somatic Therapies.

Occupational, diversional and outdoor activities.

X-ray, Clinical Laboratory and Electroencephalography.

Wellcome
Burroughs Wellcome Co.
Research Triangle Park
North Carolina 27709

A gratifying announcement about Empirin® Compound with Codeine

You may now specify up to five refills within six months when you prescribe Empirin Compound with Codeine (unless restricted by state law).

It is significant in this era of increased regulation, that Empirin Compound with Codeine has been placed in a less restrictive category. You may now wish to consider Empirin with Codeine even more frequently for its predictable analgesia in acute or protracted pain of moderate to severe intensity.

Empirin Compound with Codeine No. 3 contains codeine phosphate* (32.4 mg.) gr. ½. No. 4 contains codeine phosphate* (64.8 mg.) gr. 1. *(Warning—may be habit-forming.) Each tablet also contains: aspirin gr. 3½, phenacetin gr. 2½, caffeine gr. ½.

SOCIETY OFFICERS

Colorado Medical Society

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Session of the year indicated. Where no year is indicated the term is for one year only and expires at the 1972 Annual Session.

President: Kenneth A. Platt, Westminster.

President-elect: William A. H. Rettberg, Denver.

Vice President: John W. Haskin, Center.

Treasurer: Dwight C. Dawson, Colorado Springs.

Constitutional Secretary: James A. Henderson, Denver.

Delegates to the A.M.A.: Gatewood C. Milligan, Englewood, Dec. 31, 1973; Robert E. McCurdy, Denver, Dec. 31, 1973; Ray G. Witham, Craig, Dec. 31, 1972.

Alternate Delegates to the A.M.A.: R. Neil Chisholm, Denver, Dec. 31, 1973; John M. Wood, Englewood, Dec. 31, 1972; William Y. Takahashi, Boulder, Dec. 31, 1973.

Speaker, House of Delegates: James A. Philpott, Jr., Denver.

Vice Speaker, House of Delegates: Joseph S. Pollard, Jr., Colorado Springs.

Foundation Advocate: Charles B. Kingry, Denver.

Scientific Editor for Colorado and Chairman of the Editorial Board, Rocky Mountain Medical Journal: Douglas W. Macomber, Denver.

Assistant Scientific Editor for Colorado, Rocky Mountain Medical Journal: Carl H. McLaughlin, Denver.

Executive Director: Mr. Donald G. Derry, 1809 E. 18th Ave., Denver. Office Telephone (303) 399-1222.

Montana Medical Association

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Meeting in the year indicated. Where no year is indicated the term is for one year only and expires at the 1972 Annual Meeting.

President: John Pfaff, Jr., Great Falls.

President-elect: Hollis K. Lefever, Lewistown.

Vice President: John R. Burgess, Helena.

Secretary-Treasurer: Robert P. Yost, Missoula.

Assistant Secretary-Treasurer: William E. Hadcock, Conrad.

Delegate to the A.M.A.: Herbert T. Caraway, Billings.

Alternate Delegate to the A.M.A.: Mark B. Listerud, Wolf Point.

Executive Committee: John Pfaff, Jr., Great Falls; Hollis K. Lefever, Lewistown; John R. Burgess, Helena; Robert P. Yost, Missoula; William E. Hadcock, Conrad; Herbert T. Caraway, Billings; Mark B. Listerud, Wolf Point; Richard L. Peterson, Hamilton; John S. Anderson, Helena.

Scientific Editor for Montana, Rocky Mountain Medical Journal: Gerald A. Diettert, Missoula.

Associate Editor, Rocky Mountain Medical Journal: Mr. L. Russell Hegland, Billings.

Executive Secretary: Mr. L. Russell Hegland, 1236 North 28th St. (P.O. Box 1692) Billings 59103. Telephone (406) 252-6673.

Nevada State Medical Association

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at th 1972 Annual Session.

President: William D. O'Gorman, Las Vegas.

President-elect: John P. Sande, Reno.

Secretary-Treasurer: John W. Callister, Reno.

Immediate Past President: V. E. Elliott, Fallon.

Delegate to A.M.A.: Leslie A. Moren, Elko.

Alternate Delegate to A.M.A.: Kenneth E. Turner, Las Vegas.

Scientific Editor for Nevada, Rocky Mountain Medical Journal: Harry J. McKinnon, Las Vegas.

Assistant Scientific Editor for Nevada, Rocky Mountain Medical Journal: Wesley W. Hall, Reno.

Associate Editor, Rocky Mountain Medical Journal: Mr. Nelson B. Neff, Reno.

Executive Director: Mr. Nelson B. Neff, 3660 Baker Lane, Reno 89502. Telephone (702) 323-6788.

New Mexico Medical Society

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1972 Annual Session.

President: Vaun T. Floyd, Albuquerque.

President-Elect: Don R. Clark, Roswell.

Vice President: Armin T. Keil, Raton.

Secretary-Treasurer: Ronald V. Dorn, Jr., Albuquerque.

Immediate Past President: Harry D. Ellis, Santa Fe.

Speaker, House of Delegates: William J. Hossley, Deming.

Vice Speaker, House of Delegates: Rex G. Quigley, Hobbs.

Delegate to A.M.A.: Allan L. Haynes, Clovis.

Alternate Delegate to A.M.A.: Emmit M. Jennings, Roswell.

Councilors for 3 Years: Adrian H. Bodelson, Santa Fe, District II; John J. Smoker, Raton, District I.

Councilors for 2 Years: William C. Gorman, Albuquerque, District III; John M. McGuire, Alamogordo, District VI.

Councilors for 1 Year: Samuel E. Neff, Clovis, District IV; Jack L. Coats, Farmington, District VII; Earl Flanagan, Carlsbad, District V.

Scientific Editor for New Mexico, Rocky Mountain Medical Journal: Marcus J. Smith, Santa Fe.

Assistant Scientific Editor for New Mexico, Rocky Mountain Medical Journal: William S. Curran, Albuquerque.

Associate Editor for New Mexico, Rocky Mountain Medical Journal: Mr. Ralph R. Marshall, Albuquerque.

Executive Director: Mr. Ralph R. Marshall, 3010 Monte Vista Blvd., NE, Albuquerque; Telephone (505) 265-8494.

Assistant Executive Directory: Mr. Thomas A. Bodnar, Albuquerque.

Utah State Medical Association

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1972 Annual Session.

President: Merrill C. Daines, Logan.

President-elect: William R. Christensen, Granger.

Past President: Russell M. Nelson, Salt Lake City.

Honorary President: Stanley M. Clark, Provo.

Secretary: Howard G. McQuarrie, Salt Lake City.

Treasurer: Scott M. Smith, Salt Lake City.

Delegate to A.M.A.: Drew M. Petersen, Ogden.

Alternate Delegate to A.M.A.: Alan R. Nelson, Salt Lake City.

Speaker, House of Delegates: William Knox Fitzpatrick, Salt Lake City.

Vice Speaker, House of Delegates: John W. Emmett, Logan.

Scientific Editor for Utah, Rocky Mountain Medical Journal: Alan E. Lindsay, Salt Lake City.

Associate Editor for Utah, Rocky Mountain Medical Journal: Mr. Hoyt W. Brewster, Salt Lake City.

Executive Director: Mr. Hoyt W. Brewster, 42 South Fifth East Street, Salt Lake City. Telephone (801) 355-7477.

Wyoming State Medical Society

OFFICERS—1971-72—Terms of Officers and Committeemen expire December 31, 1971. At the 1971 Annual Session, terms of office (with the exception of Delegate and Alternate Delegate to A.M.A.) were changed to expire at the end of the calendar year rather than at the Annual Session.

President: Fenworth M. Downing, Sheridan.

President-elect: William G. Erickson, Lander.

Vice President: Donald F. Mahnke, Casper.

Secretary: Paul R. Yedinak, Rock Springs.

Treasurer: Donald B. Hunton, Cheyenne.

Delegate to A.M.A.: Harlan B. Anderson, Casper.

Alternate Delegate to A.M.A.: Thomas A. Nicholas, Buffalo.

Speaker of the House: Goode R. Cheatham, Jr., Casper.

Vice Speaker of the House: Norman R. Black, Cheyenne.

Scientific Editor for Wyoming, Rocky Mountain Medical Journal: Francis A. Barrett, Cheyenne.

Associate Editor for Wyoming, Rocky Mountain Medical Journal: Mr. Robert Smith. Cheyenne.

Executive Secretary: Mr. Robert Smith, P.O. Box 1367, Cheyenne, Wyoming 82001. Telephone (307) 632-5525.

WANT ADS

INTERNIST BOARD CERTIFIED or qualified for private practice in college town Northern Colorado—salary first year with partnership later with Board certified surgeon, and Board qualified internist. Please reply to Box 971-1-6, Rocky Mountain Medical Journal, 1809 East 18th Avenue, Denver, Colorado 80218. 971-1-6

SUBLEASE OR RENT office space (garden level) at 1755 Gilpin Street, Denver, Colorado. 300 square feet includes office, small play room, waiting room. Ideal for psychiatrist, psychologist, or therapist. Call Frank E. Bumgarner, Jr., M.D. 744-7028. 1171-5-2B

NEEDED: A doctor for Lovelock, Nevada, 92 miles east of Reno on Interstate 80. A full partnership is offered in a Medical Clinic, or if not agreeable, a subsidy will be considered. Please contact Mr. Vern Schoenfeld, Chairman, Board of Trustees, by telephone, collect, at 273-2656 or 273-2681. 1071-9-TFB

COLORADO SPRINGS—One side of new building for rent, quality area. Reception room, business office, private office, three work rooms. Carpeted, air-conditioned, off street parking. Glenn Lilly—Telephone: (303) 596-4251. 1171-1-2B

UNION CARBIDE OFFERS exceptional opportunity for general practice in Uravan, Colorado. Fixed income from industrial program and free use of medical facilities for private practice. Practice plus industrial income should easily net over $50,000 per year. Housing, schools available. An equal opportunity employer. Contact: J. J. Welsh, M.D., Union Carbide Corporation, 270 Park Avenue, New York, New York 10017. 1271-4-1B

FAMILY PHYSICIANS, TWO, Colorado Springs, Colorado, to join two well established physician in partnership, currently building unique new medical park. Opportunities unlimited. Write or call: Karl M. Buretz, M.D., 3021 North Hancock, Colorado Springs, Colorado 80907. Phone (303) 636-2311. 1271-1-6

BUY
SELL
LEASE
RETAIN
EXCHANGE
? ? ? ? ? ? ? ? ?

If these questions are disturbing you, consult a real estate counselor.

PAUL S. TOLTZ
REALTOR
REAL ESTATE COUNSELOR

601 Broadway, Suite 412
Denver, Colorado 80203
893-3088

By Appointment Only

WANTED: Chief, Outpatient Service with some clinical responsibility if preferred. Very active small GM&S hospital with excellent consultants, educational opportunities and ample free time. Located in small, picturesque Western city of 10,000. Salary $20,815 to $23,591 depending on qualifications. Nondiscrimination in employment. Write or call Frank R. Mohs, M.D., Chief of Staff, VA Hospital, Miles City, Montana 59301. 1271-5-3B

SAINT VINCENT'S HOSPITAL is accepting applications of physicians for full-time emergency room coverage. If interested, please contact Sister Alice Marie, Administrator, Saint Vincent's Hospital, P.O. Box 1543, Billings, Montana 59103 or call (406) 252-2121. 1271-6-1B

INTERNIST OR GENERAL PRACTITIONER for Medical Service in 235 bed GM&S Hospital in beautiful southern Black Hills. Fully accredited, well-staffed and equipped. Salary range $22,000 to $28,000 depending on qualifications. Excellent Federal employee benefits. May be licensed in any state. On-station quarters may be available. Ideal family living. Area abounds in outdoor recreation. Climate surprisingly mild. Equal opportunity employer. Contact: Chief of Staff, VA Center, Hot Springs, South Dakota 57747. 1271-7-1B

INTERNIST—BOARD CERTIFIED OR ELIGIBLE to join 2 others in 12 man multi-specialty group. No investment/expenses. Salary then early partnership. Convenient S. E. Denver location. Contact: Jim Gallatin, Clinic Manager, 2090 South Downing Street, Denver 80210, (303) 744-1241. 1271-8-1B

WANTED: PEDIATRICIAN, preferably with special interest in allergy, to join eight-man multi-specialty group located in Colorado-West. Contact: Glenwood Medical Associates, P.C., 1905 Blake Avenue, Glenwood Springs, Colorado 81601. Phone 303—945-5441. 1271-9-1B

FOR SALE: SOLO ORTHOPEDIC Practice in Aspen, Colorado. Excellent gross. Fully equipped. Excellent location, sharing office space with General Surgeon and Internist. Local hospital oriented to orthopedics. Available Jan. 1. Contact Dr. Robert Swearingen, Box 2120, Aspen, Colorado 81611. 1271-10-1B

FOR SALE: Coleman Junior Spectrophotometer, excellent condition. $200/best offer. L. Johnson for B. P. Phibbs, M.D., 230 So. Washington, Casper, Wyoming 82601 (307) 237-9564. 1271-3-1B

LIMITED SPACE AVAILABLE for full or part-time practice with eventual opportunity to purchase stock in medical dental building. Would prefer specialist in Internal Medicine or General Practitioner. 5150 Yale Circle, Yale Medical Arts Building, Denver, Colorado. Call Mr. Carl Bauman, (303) 758-2115. 1271-2-3B

GENERAL SURGEON, Board Certified or eligible, to join 12-man clinic. Immediate need for associate to live and practice in 1971 finalist All-American City. Locate or relocate. Contact Charles R. Gibson, MD, Chickasha Clinic, Inc., (405) 224-4853, Box 1069, Chickasha, Oklahoma 73018. Inquiries kept confidential. 1271-11-1B

WANTED: MD under 55 years of age who wishes a challenging practice with regular hours. One month paid vacation plus other fringes. Compatible small medical staff in a 40-bed Joint Commission Accredited university hospital. Attractive college town of 35,000 with outstanding cultural, sporting and recreational attractions. For more information write Robert E. Sinclair, MD, Lafene Student Health Center, Kansas State University, Manhattan, Kansas 66502. 1271-12-1B

Graduate Medical Assistants

Available for placement now, seven-month intensive preparation, including one month internship in a doctor's office.

We welcome your inquiries!

Contact Director of Placements at (303) 222-1526

Colorado College
of Medical and Dental Assistants
655 Broadway, Denver, Colorado

INDEX TO ADVERTISERS

Abbey Rents 21

Arch Laboratories
Dicarbosil 22

Berbert, George and Sons, Inc. 40

Broadmoor Hotel 53

Burroughs Wellcome Company
Empirin Compound with Codeine 56

Campbell Soup Company
Soups 47

Colorado College of Medical and
Dental Assistants 58

Denver Optic Company 50

Dorsey Laboratories
Triaminic 16

Emory John Brady Hospital 55

Flint Laboratories
Synthroid 4-7

Lederle Laboratories
Declostatin ..... Cover IV

Lilly, Eli & Company
Darvon Compound-65 17
V-Cillin K, Pediatric 26

Lodge at Vail 53

McNeil Laboratories
Parafon Forte 3

Mutual of Omaha 51

Newton Optical Company 49

Picker Medical Products 54

Practice Management Services 48

Publishers Press, Inc./Monitor
Publications 65

Republic Building Corporation 53

Roche Laboratories
Noludar ..... Cover II, 1
Librax 8-9

Schering Corporation
Drixoral 19

Searle, G. D. & Company
Lomotil ..... 66, Cover III

Smith, Kline and French Laboratories
Dyazide 18

Stanford University 20

Toltz, Paul S.
Real Estate Counselor 58

Upjohn Company
Trobicin 12-15
E-Mycin 25

Wallace Pharmaceuticals
Miltown 11

Warren and Sommer, Inc.
Insurance 24

Western States Scientific Assembly 23

PUBLICATION PRINTING...

NEWSPAPERS • MAGAZINES
ANNUALS • QUARTERLIES
BOOKLETS • BROCHURES
REPORTS • ROSTERS • PROGRAMS
HANDBOOKS • CATALOGUES

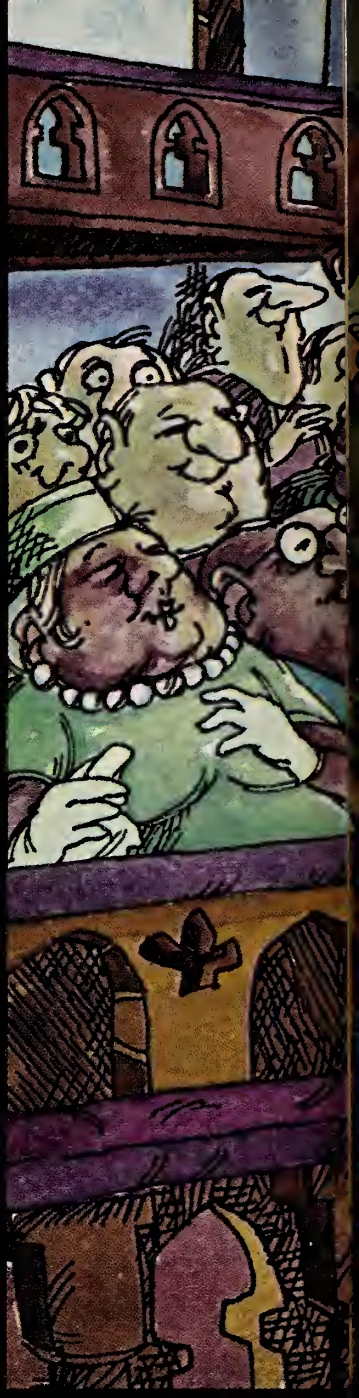
•

EDITORIAL ASSISTANCE • BINDING
ART DEPARTMENT • MAILING

Publishers Press, Inc. / Monitor Publications

2177 W. 7th DENVER 892-0166

When diarrhea wrings the wedding belle...



It's all very well to counsel patience in diarrhea patients. There are times when relief of symptoms can't come too soon.

X-ray studies[1] in 16 normal subjects showed just how promptly the active ingredient in Lomotil does its work.

Lomotil retarded gastrointestinal motility particularly during the first three hours after administration. It continued its moderating action on the bowel for at least three hours more.

Physicians prescribe Lomotil more often than any other drug when the urgency for the control of diarrhea is most distressing.

1. Demeulenaere, L.: Action du R 1132 sur le transit gastro-intestinal, Acta gastroent. Belg. 21:674-680 (Sept.-Oct.) 1958.

Lomotil®

TABLETS/LIQUID

Each tablet and each 5 cc. of liquid contain:
Diphenoxylate hydrochloride . . . 2.5 mg.
(Warning: may be habit-forming)
Atropine sulfate . . . . . 0.025 mg.

Saves the Day

Warnings. Lomotil should be used with caution in patients taking barbiturates and, if not contraindicated, in patients with cirrhosis, advanced liver disease or impaired liver function.

Precautions. Lomotil is classified as a Schedule V substance by Federal Law with theoretically possible addictive potential at high dosage; this is not ordinarily a clinical problem. Use Lomotil with considerable caution in patients receiving addicting drugs. Recommended dosages

THE COLORADO MEDICAL SOCIETY

CELEBRATES 100 YEARS 1871 - 1971

LIBRARY OF TH
EGE OF PHYS
PHILADA
Y 5 - 1971
MD 8

Rocky Mountain Medical Journal

Colorado Edition

April, 1971

VOLUME 68 • NUMBER 4

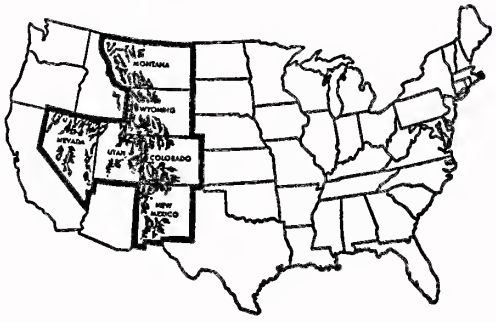
1st Sp. Ed.

MDS

ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

APRIL 1971
Volume 68, Number 4
Colorado Edition



Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222
(area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204
Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

A Colorado Edition

. . . presenting the first half of a series of articles commemorating the Colorado Medical Society's 1871-1971 Centennial, under authority of the House of Delegates and the Board of Trustees.

Compiled and edited by Harvey T. Sethman under direction of the above authorities and their Centennial Committee.

The Committee and its authors are especially indebted to Mr. Alan Ayers of The Denver Post's *Empire Magazine* for the cover design and many other sketches throughout these pages.

CENTENNIAL COMMITTEE of the Colorado Medical Society:

Bradford Murphey, M.D., Chairman
Clyde Stanfield, M.D., Vice Chairman
John H. Amesse, M.D.
Roy R. Anderson
Lewis Benesh, M.D.
Barron Beshoar
Marcia F. Curry, M.D.
Judith Hannemann
Harold D. Jourdan, M.D.
Peter A. Morstad
Nolie Mumey, M.D.
Robert L. Perkin
Harvey T. Sethman
Richard W. Whitehead, M.D.

Consultants:
Douglas W. Macomber, M.D., Scientific Editor;
Carl H. McLauthlin, M.D., Assistant Scientific Editor;
Donald G. Derry, Managing Editor;
Rocky Mountain Medical Journal

Mrs. Dolores Renze, State Archivist of Colorado

Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations. It is the Official Journal of the Rocky Mountain Medical Conference and the medical societies of Colorado, Montana, Nevada, New Mexico, Utah and Wyoming.

Subscription: $7.00 per year in advance for regular editions, postpaid in the United States and its possessions, or, single copy 60¢ plus postage. Subscription to regular editions is included in medical society dues of sponsoring state medical organizations. Colorado Centennial Editions will be mailed to all members of the Colorado Medical Society; a limited number of extra copies of this Edition will be available at $3.00 each, plus postage.

Copyright: This Journal is copyright, 1971, by the Colorado Medical Society. Requests for permission to reproduce anything from the columns of this Journal should be addressed to the Journal Office.

Second class postage paid at Denver, Colorado

Table of Contents

First Special Colorado Medical Society Centennial Edition

Foreword; Marvin E. Johnson, M.D. ii

Preface; Bradford Murphey, M.D. iii

Medicine in Colorado During the Primitive and Formative Years;
Nolie Mumey, M.D. 1

Birth of the Colorado Medical Society; Judith Hannemann 25

From Pest Houses to Hospitals — Our Changing Hospital Scene;
Roy R. Anderson and Maxine Beaton 33

A Century of Colorado's Industrial Medicine; Lewis Benesh, M.D. 39

Public School Health in Colorado, from Territorial Days to 1971;
Marcia F. Curry, M.D. 49

CMS Presidents—The First Fifty Years; Harvey T. Sethman 65

Additional articles will appear in a second Special Edition scheduled for June, 1971, publication.

FOREWORD

The Centennial Celebration of the Colorado Medical Society is a most significant event in our professional lives. Reflecting on the proud achievements of the past as they have been so well delineated by our talented authors should deeply impress us with an appreciation of the efforts of others upon which we build currently. Our assimilation of this history must inevitably give us a new sense of importance for what we are accomplishing today and should enliven and give strength to our dreams for tomorrow. We have a strong medical society and a proud professional heritage because of the unselfish service of our countless and often unrecognized predecessors. This fine centennial series should remind us emphatically of our obligation to continue their good works with the traditional generous perspective.

The members and officers of the society are exceedingly grateful to our Centennial Committee Chairman and his loyal committee members for their efforts. We offer our sincere thanks to the authors and editors of this fine historical supplement. Without such careful efforts the valuable lessons of the past would have been closed to us and our successors. Fortunately they are now found within these pages for our enjoyment!

Marvin E. Johnson

Marvin E. Johnson, MD,
President, 1970-71

PREFACE

The history of medical practice and the medical profession in Colorado during the last one hundred years is an exciting story that should be of interest to every member of the medical profession in the state.

Surely no physician needs to be reminded of the importance of history. Just as the history of a patient is essential for the understanding and treatment of his illness, so, too, a knowledge of the background and history of our profession is imperative if we are to correct its ills and protect and strengthen its future.

Some two thousand years ago the great Roman orator and philosopher, Marcus Tullius Cicero, warned his contemporaries not to ignore the lessons of history.

In this connection he said, "Not to know what has been transacted in former times is to continue always as a child. If no use is made of the labors and lessons of past ages, we must remain forever in the infancy of knowledge."

And of course there is still another reason why the physician of Colorado should pause, review and ponder the history of our profession. At a time when our profession is under attack from all sides a better understanding of the achievements of the medical profession in the past should make us all less defensive, strengthen our morale and provide us with the confidence, the patience and the wisdom to deal with our problems and our critics with dignity and good judgment.

The members of the Centennial Committee of the Colorado Medical Society join me in expressing the hope that the physicians of Colorado will enjoy reading these stories of Colorado doctors, their institutions and their organizations. And it is our hope also that they will share our pride in the achievements of our profession during the last one hundred years of service to the people of Colorado.

Bradford Murphey, MD, Chairman
Centennial Committee

'DOCTOR ON HORSEBACK'
BJ/AKERS
1971

Medicine in Colorado During the Primitive and Formative Years

Nolie Mumey, MD*

COLORADO is young when compared to the history of medicine in some of the Old World countries. The State is still in the process of development, for its early years were full of invasions, harassed by nomadic Indian tribes. It was a land guarded by the arms of Spain until General Stephen W. Kearny unfurled the flag of the United States over New Mexico in 1846.

It is a seemingly endless task to fully depict the true status of the early physicians, for they have vanished in most instances, leaving only faint images of their achievements. But many of their heroic efforts are recorded as burning lights to illuminate the way for some of the younger men in medicine.

More than a century has passed since the first physicians came into the country we now know as Colorado. The area within Colorado's present boundaries was known as Arapahoe County, Kansas Territory, from 1854 to 1859; in 1860 it became Jefferson Territory; from 1861 to 1876 it was Colorado Territory, becoming a state in the latter year, one hundred years after the signing of the Declaration of Independence, thus becoming known as the Centennial State.

A century is of little importance in the history of a country except for comparison and its application to human achievement. Colorado had no distinctive place in the early history of our country, in fact it was designated as "The Great American Desert."[1]

Epidemics

In order to better understand primitive medicine we must of necessity go back to the destructive forces of epidemics in foreign countries as well as in Colorado. All the scenic beauty of our great state has an inheritance of the ages, dating back to one thousand million years from geological findings and some twenty-five thousand years from an archeological viewpoint. Eighty million years ago Colorado was four thousand feet below a prehistoric ocean. Diseased conditions have been found in the bones of dinosaurs, with signs of tumors and bacterial invasion.

It is well to review some of the vivid records within the confines of medical history dating back to the plague, commonly called the "Black Death," brought to Europe by the returning Crusaders. In 1348, half of the population in England was eliminated – one day in health, the next day fever with swollen glands, and in twelve hours death. This continued until the great fire of London in 1666 ended the dreadful epidemic.[2]

A grim reminder of early epidemics was the destructive force of smallpox; the death rate was five thousand to every million inhabitants. In 1707, eighteen thousand out of a population of fifty thousand died of the dreaded disease. In Prussia and in France, thirty thousand died every twenty-five years. In the 18th century fifteen million men, women, and children died from small-

---

*A Denver surgeon, Dr. Mumey's 72 published books on Western history, medical history, and aviation history have brought him national honors and fame, and most of them have become valuable collector's items.

[1] Part of the land now known as Colorado was included in "New Spain." The Spaniards founded Santa Fe in 1605 or 1606; in 1821, the Mexicans threw off the Spanish yoke. For the next fifteen years the southwestern part of Colorado was part of Mexico. In 1836, Texas came under Mexican control and then southern Colorado was part of the Lone Star State. After 1850, most of Colorado was included in New Mexico; in 1854 it became part of Kansas until Colorado Territory was organized in 1861.

[2] The cause of the plague was discovered in 1894 in Hong Kong; it is the *bacillus pestis* found in fleas carried by rats.

pox; in the following century six million American Indians died. Not only was the disease disfiguring to those who survived it, but it left many blind.

In the early days, Denver was filled with pest houses to care for smallpox cases; the disease left its mark on many pioneer faces and filled a number of graves.

The grim harbinger of death exacted a heavy toll from the early settlers in Colorado, for they were exposed to epidemics of typhoid fever, diphtheria, and smallpox until 1890. Silicosis was rampant among the hard-rock miners; the average life of the miner was around thirty-eight years.[3] Pneumonia was a fatal disease in most instances, for the treatment was cupping and scarification. Cholera[4] took its toll in the 1840s along with "Mountain Fever," a disease known to early trappers and miners which was malarial in origin, in some instances mixed with typhoid.

Undulent fever, known as "Cow Sickness," was also responsible for many early deaths. The settlers had quinine, blue mass, opium, cathartics, and Warburg's Drops; the latter was used for fevers. Sagebrush tea was used for diarrhea, which was called the "Black Canker of the Plains," a diarrhea which caused a number to die on their way across the plains. Scurvy took its toll; potatoes were the remedy used in the treatment.

Indian Medicine

The early inhabitants of Colorado were Indians; a number of our towns and some of our streets in Denver have received their names from the occupancy of some of the tribes. As early as 1849, several bands of Cheyenne Indians were exterminated by cholera.[5]

Equipment used by the Medicine Man. (Left to right, top to bottom): Zuni obstetrical effigy, buffalo tail used for sweat baths, beaded turtle containing umbilical cord to protect the virginity of the female child, phallic stick used in treatment of the male generative organs, Medicine Man's pipe, rattles, prescription stick, mad stone (bezoar), crocodile sticks, and prayer sticks. (From the author's collection)

---

[3] Beyer, Theodore E., "The Gold Rush; Its Cost in Health and Life," *Colorado Magazine*, Denver, Colorado, Vol. 50, No. 5, (May, 1959), pp. 51-61.

[4] Cholera was discovered by Justus von Leubig in 1832; the comma bacillus of cholera was discovered in 1833.

[5] Hodge, F. W., *Handbook of the American Indians*, p. 253.

Arapahoe Indian Medicine Man's bag and contents. (From the author's collection)

Primitive medicine among the Indians was practiced as a ritual in which the Medicine Man played an important role with his dances, rattles, masks, and other paraphernalia. All of these were essential in the treatment of the sick. The Medicine Men were recognized as individuals who had some supernatural power. They used magic, sorcery, incantations, and herbs; some tribes used trephination and bloodletting. They used splints in the treatment of fractures. The Mesa Verde ruins have revealed some information regarding primitive Medicine Man's sticks, and skulls with evidence of trephination.

Medicine was practiced among the Indians in Colorado long before the advent of the white man. Some of the tribes had knowledge of the therapeutic value of herbs and mineral salts as well as the use of sweat baths and cupping; they employed the use of bandages and resorted to the extraction of teeth. Bleeding was stopped by the use of cobwebs, dirt, and the application of pressure. They resorted to the use of certain herbs in cases of overeating and had a stick for expressing gas from the abdomen. Tobacco was used as an antiseptic in the treatment of wounds. Wet rawhide was applied in the treatment of fractures by the Shoshones; it was moulded to the limb after the fracture was reduced and made a favorable cast after it dried. The use of sand paintings with chants was another favored method for treating the sick. The painting, which had to be made before sunrise and destroyed by sunset, consisted of several designs made with different colors of sand in a space four feet square. The afflicted person was placed on the sand painting and the Medicine Man performed his chants around the stricken individual. Prayer sticks were another method of treating the sick. They were made by the relatives of the ill person and a prayer was offered with each stick. These were taken to the Medicine Man who made an altar in the home of the sick person, where they remained for four days. Around the altar were placed fetishes of various designs.

The great healing powers in Colorado were its mineral springs found at Manitou, Canon City, Glenwood Springs, Pagosa Springs, and Idaho Springs. Their value was in the treatment of rheumatism, skin diseases, and various stomach complaints; the waters were used for drinking

Hopi Indian Medicine Man's Kachina. (From the author's collection)

Medicine Man's stick. (From the author's collection)

and for bathing. The Medicine Men dressed in special clothes which were decorated with skins of animals and reptiles, and claws from eagles, bear, and various kinds of birds.

The juice of the cocoa plant and some form of hypnotism were used for anesthetics; the sound of the drum and noise from rattles also had a soothing effect. Charms were used as a prophylaxis against certain diseases.

Trapper Medicine

The early trappers, known as Mountain Men, were the first to contact the Indians and they learned a great deal from the red men. Despite their peripatetic characters the trappers were an ingenious group of men who knew how to survive in their adventurous wanderings as they traversed the various streams in Colorado from 1811 to 1840 gathering a rich harvest in beaver skins and other pelts.[6] They married into various Indian tribes and learned survival from them.

The Mountain Men did their own surgery which consisted of amputations, suturing of wounds, and removing arrowheads. Ice and snow were used as anesthetics, producing a freezing type in amputations. Arrowheads were removed by cutting off the barbed part and pushing the shaft through the flesh; wounds were sutured with needle and thread.

The trappers carried such drugs as laudanum for diarrhea and the relief of pain; whiskey and red pepper were also used for the same condition. Willow bark made into the shape of a catheter was employed to relieve a bladder distention.

These early inhabitants of the wilderness area of Colorado were a hardy lot although they lived mostly on meat. They extracted teeth, treated themselves with crude methods, and survived the onslaughts of wild animals and attacks from marauding Indians. They had a unique method of destroying lice from their clothing – they would place the garments over an ant hill so the ants could devour the lice.

[6] The first trapper to enter what is now Colorado was Ezekiel Williams, who took a band of trappers to the upper Arkansas River in 1811.

Indian skulls from Mesa Verde showing trephination. (Courtesy of the State Historical Society of Colorado)

The early invaders had to be resourceful; their instruments for the backwoods surgery consisted of a butcher knife, meat saw, razor, and hot irons; a tourniquet was made from a handkerchief which was placed around the limb and twisted by the means of a stick to control bleeding. They made use of poultices made from leaves and barks; gum from pine and balsam fir was used for wounds which were washed in cold water. In many instances plasters of buffalo wool or beaver fur, or a wad of tobacco would be used. They used bandages made from blankets, or strips of hides; trusses for the support of hernias were made from pads and bandages. Watermelon seeds boiled in water was the remedy for kidney trouble.

Transportation of the sick or wounded was done by means of an improvised travois which

Wooden splints found in Mesa Verde ruins. (Courtesy of the State Historical Society of Colorado)

was made by placing a blanket upon two poles; many of the sick were taken to the mineral springs which at times required a long journey.

Physicians With Expeditions

Into this wonderful wild country with its undulating plains and awe-inspiring mountains, where grazed countless herds of buffalo and where the Spanish and French had passed, came the American explorers. Along with them came physicians who left many interesting records of their expeditions.[7]

The first American explorer to come into what is now Colorado was Zebulon Montgomery Pike in 1806. Along with him was Dr. John H. Robinson, a physician without pay, whose attachment to the expedition has been questioned. He has been accused of acting as a spy, but he did care for the sick and injured men who accompanied Pike. Dr. Robinson was twenty-four years of age when he came into Colorado; he had with him papers to establish the claims of William Morrison of Kaskakia, Illinois, against one Baptiste Le Lande who was residing in Santa Fe, New Mexico.

[7] This period of exploration was from 1806 to 1853.

Back support made from bark, identified by some as a cradleboard, found in Mesa Verde ruins. (Courtesy of the State Historical Society of Colorado)

Heads and arm found in Mesa Verde. (Courtesy of the State Historical Society of Colorado)

Burial in a cotton robe at Mesa Verde. (Courtesy of the State Historical Society of Colorado)

Items found in Mesa Verde ruins (from top down): cane, Medicine Man's wand, turkey bone instruments used for phlebotomy and for sewing, and stone ax with wooden handle. (Courtesy of the State Historical Society of Colorado)

Dr. Robinson was born in Augusta County, Virginia, January 24, 1782; he studied medicine, went to St. Louis, married a sister-in-law of Dr. Antoine Saugrain, and left with Pike on the expedition. Pike in his reports praises him by the following statement: "Dr. Robinson has accompanied me the whole route, is still with me, and of whom I take pleasure in acknowledging I have

received important services as my companion in danger and hardships, counsellor in difficulties and to whose chemical and mineralogical knowledge the expedition was greatly indebted. He is a young gentleman of talents, honor and perseverance."

Dr. Robinson left Pike and journeyed on to Santa Fe.[8] He went to Mexico in 1815 and fought for Mexican Independence, achieving the rank of Brigadier General. He later settled in Natchez, Mississippi, where he practiced medicine until his death.

The next physician of whom we have any record is Dr. Edwin James, who accompanied Major Stephen H. Long on his expedition into Colorado in 1820. Dr. James acted as historian, botanist, and made geological observations. He with two companions were the first white men to climb Pikes Peak, which was done on July 14, 1820. The Peak was first called James Peak and placed on the map as such until 1843, when the name was changed by John Charles Fremont, the inveterate explorer.[9]

Dr. James gave Castle Rock its name and wrote a good account of beaver at work. His idea of what is now Colorado is in the following paragraph: "We have little apprehension of giving too unfavorable account of the country. Though the soil is in some places fertile, the want of timber, of navigable streams and water for the necessities of life, render it unfit for any but a normal population. The traveler who shall at any time have traversed its desolate sands will, we think, join us in that this region may forever remain the unmolested haunt of the native hunter, the bison and the jackal."[10]

Military Physicians

A number of military expeditions traversed the country following the expeditions of Pike and Long and with them were physicians. The Doniphan Expedition of 1846 had three physicians: Dr. George Penn, the principal surgeon, Dr. T. M. Morton, assistant surgeon, and Dr. J. Vaughan, assistant surgeon of the first regiment. They were part of the Army of the West.[11]

Dr. Benjamin Franklin Fellows was a physician on the march of the dragoons under the command of Colonel Henry Dodge in 1835.[12] The dragoons followed the South Platte River into Colorado and returned by way of the Arkansas River. Dr. Fellows served in the army from March 2, 1833, until his resignation in May, 1839.[13]

Another military surgeon who came into the region during the territorial days and played an important role in the history of the country was Dr. H. R. Tilton, who was stationed at Fort Lyon, Colorado. He attended one of the greatest of all the Mountain Men in his last illness, Kit Carson – one of the great scouts and best known of the early trappers and Mountain Men, a friend of the Indians and a man who made history. The report of his death as given by Dr. Tilton is as follows:[14]

> Kit Carson was able to be up all the time. He called out "Doctor! Compadre!" I sprang to him and seeing a gush of blood pouring from his mouth, remarked, "This is the last of the General." I supported his head with my hand while death speedily closed the scene. The aneurism had ruptured into the trachea, death took place at 4:25 p.m. May 23, 1868.[15]

Visiting Physicians

Colorado, poised on the crest of a continent and with vast resources and wild game, attracted a motley group of people including physicians who were summoned to the call of the mountains more from curiosity than for service to the people.

---

[8] Hulbert, Archer Butler, *Zebulon Pike's Arkansaw Journal,* Stewart Commission, Denver, Colorado, 1932, pp. 171-172.

[9] James Peak, now pierced by the Moffat Tunnel, is a monument to Dr. James, a pioneer physician.

[10] *Colorado Magazine,* Denver, Colorado, Vol. III, page 92.

[11] Hughes, John T., *Doniphan's Expedition, Containing an Account of the Conquest of New Mexico,* U. P. James, Cincinnati, 1847, p. 26.

[12] Dodge, Colonel Henry, *Journal,* Doc. 181, 24th Cong., 1st Sess., House of Rep., War Dept., p. 2.

[13] Heitman, Francis B., *Historical Register and Dictionary of the U. S. Army,* p. 416.

[14] Kit Carson died in the quarters of Dr. Tilton at Fort Lyon, Colorado Territory, where he had been moved on May 14th. Carson was buried with full military honors at Boggsville, Colorado; his remains were moved later to Taos, New Mexico, where they now repose.

[15] Thompson, Albert W., "The Death and Last Will of Kit Carson," *Colorado Magazine,* Vol. V, 1928, pp. 183-191.

Dr. Adolph Wislizenus, a German physician residing in St. Louis, traversed along the South Platte River, passing through the site of the present city of Denver. He described the mountains with no mention of the Indians or any kind of habitation along Cherry Creek.[16]

Another visiting physician who came late was Dr. C. M. Clark. He gave an account of Denver describing the gambling houses, saloons, and some of the business places. He summed up the situation in this paragraph in his book: "There is a pestilential taint at work in the constitution of its society, which now and then throws off humors that render the lives of the citizens unsafe."[17]

The first permanent physician to locate in Colorado was Dr. E. L. Hempstead who was resident at Bent's Fort in 1846 and acted as Post Physician. Very little is found in literature concerning his activities; although he has been mentioned by some who were at the Fort, he still remains elusive to this writer.[18]

Dr. Edwin James
(Courtesy of Denver Public Library Western Collection)

[16] Wislizenus, F. A., *A Journey to the Rocky Mountains in the Year of 1839,* Missouri Historical Society, 1912.

[17] Clark, C. M., *A Trip to Pike's Peak and Notes by the Way,* S. P. Rounds Steam Book and Job Printing, Chicago, 1861.

[18] Le Compte, Janet, "Charles Autobees," *Colorado Magazine,* Vol. XXIV, No. 4, 1957, p. 274.

Dr. Henry Remsen Tilton
(Courtesy of Denver Public Library Western Collection)

Dr. Levi J. Russell
(Courtesy of Denver Public Library Western Collection)

Gold Rush Physicians

Two physicians who came into the region for the purpose of prospecting for gold were Dr. Levi Russell of Dahlonega, Georgia, and Dr. A. F. Peck of Omaha, Nebraska Territory.

Dr. Russell, born in Georgia in 1830, took a three-year course in medicine and was graduated from the Philadelphia College of Medicine and Surgery in 1853. After finishing his course he returned to his home town and began a successful practice of medicine as well as taking part in community affairs. He came to what is now known as Denver in 1858 with his brother, William Green Russell, who led a party known by his name. They founded the town of Auraria, which was the first platted site at the mouth of Cherry Creek. This townsite later merged with the competing town on the other side of the creek to form the city of Denver. Dr. Levi Russell built one of the first log cabins on the present site of Denver, and his brother's party staked out a rich gold claim near Central City that became famed as "Russell's Gulch."

Dr. Russell was called to treat people with fevers and those who were injured. During one of his prospecting trips into the mountains he was involved in an Indian battle and had an arrow imbedded in his flesh, which he removed.[19] After the Civil War, Dr. Russell moved to Heidenneimer, Nell County, Texas, where he resumed the practice of medicine, making his calls on horseback. He died there in 1908.[20]

Dr. A. F. Peck acquired money for his trek to Denver by dissecting the body of a man who had been lynched by the Vigilantes for horse stealing. The victim had $300 in his pockets which Dr. Peck appropriated, then he joined the Byers party to the Rocky Mountains. Dr. Peck supposedly had attended medical lectures in New Orleans and had served in General Walker's Nicaraguan Army. He was a second in the Whitsitt-McClure duel.[21] Dr. Peck first located in Cache la Poudre and ran the following advertisement in the *Rocky Mountain News:*[22]

A. F. PECK, M.D.

Physician and Surgeon
Cache-a-La-Poudre, Nebraska

Where he may at all times be found
when not professionally engaged or digging gold.

The romance of mining for precious metals has contributed so much to the riches of the world; it was a form of human activity that brought many different classes of people into the region, including a number of physicians. Many of the sons of Aesculapius played an important role in the development of Colorado. They were men sustained by faith and courage which was a part of their heritage; theirs was an epic age of practicing medicine during the frontier days of the raw West, the gold rush, the zenith of the cattle industry, the invasion of homesteaders, and the days of irrigation of rich soil. The Rush to the Rockies attracted a number of well-trained physicians who came into the region on account of their health or that of some member of their family. The exploitation of the climate for the treatment of tuberculosis had been widely advertised.

Among the early physicians who settled among the sprawling cabins and Indian tipis along the banks of Cherry Creek, the gateway to the Rockies, were the following:[23]

Dr. G. W. Barck from Leavenworth City; Dr. J. M. Clark of St. Louis; Dr. D. McLaughlin, De Sota, N. Y.; Dr. C. M. Steinberger, Omaha, N. T.; Dr. S. Wilcox, Illinois; Dr. Joseph S. Castro (one of the founders of Morrison, Colorado);[24] Dr. William Street, who located in Boulder, Colorado; Dr. Samuel Reed, Dr. G. N. Woodward, Dr. George M. Willing, Dr. J. W. Smith, Dr. Drake McDowell, Dr. W. F. McLelland (reported an amputation of an arm and an

---

[19] Smiley, Jerome, *History of Colorado*, Vol. I, pp. 667-668.

[20] Spencer, Elma Dill Russell, *Gold Country, 1828-1858*, The Naylor Company, San Antonio, Texas, 1958.

[21] Perkin, Robert L., *The First Hundred Years*, Doubleday and Company, Garden City, New York, 1959, pp. 57, 58, 59.

[22] *Rocky Mountain News*, Cherry Creek, K. T., April 23, 1859, p. 1, c. 1.

[23] Cherry Creek was called Bat-so-ah by the Indians.

[24] *Rocky Mountain News*, Denver, July 9, 1859.

operation for harelip),[25] Dr. A. Steinberger, Dr. W. H. Farner, Dr. J. W. Lee, Dr. E. Fitzpatrick of Arapahoe City,[26] Dr. C. R. Russell, Dr. A. M. Smith, Dr. J. Casto, and Dr. J. S. Stone.

Dr. Stone fought a duel with L. W. Bliss, who was Secretary of the Territory, in March of 1860. Dr. Stone was shot in the bladder and died a few months later.[27]

Another sad event took place in 1860. Dr. A. E. Arnold,[28] a Harvard graduate, with a party of seven left Mountain City and crossed the range prospecting; their bodies were found a few days later, mutilated and scalped.[29]

Territorial Physicians

Through the fleeting shadows of the years a noble group of physicians came into the region and became organized with the formation of Jefferson Territory in 1860. They made up a part of the cast of the frontier and played a role in the drama of the West. They were a fearless but conspicuous group of medical men who practiced their profession when Colorado was fringed with a lawless element of trigger-happy men who settled all their disputes with the six-gun.

Dr. O. D. Cass was a part of that population who made a permanent residence in the Cherry Creek Settlements. One day, while seated in his crude office, he was confronted by a rough looking man wearing two revolvers. The stranger spoke, "Are you the Doctor?" Dr. Cass replied, "Yes, I am." The man with piercing eyes said in a commanding voice, "I want you to go see my woman." "What is wrong with her?" inquired the Doctor. The rough stranger was emphatic, "I don't know, but I say you go see her."

Dr. Cass hesitated, took a long look at the man, and replied, "My fee for a visit is twenty-five dollars which must be paid in advance." His request was answered by a quickly drawn revolver being thrust into his face. "Damn your fee. Pick up your bag and follow me or I'll blow your brains out." Dr. Cass had no choice. He was forced by gunpoint to go to a nearby cabin. The gunman opened the door and said: "There she is. You take good care of her and be damn quick about it." He disappeared.

Dr. Cass examined the sick woman, prescribed for her, and made daily visits until she recovered. He never saw the gunman until a few days after he had discharged the woman. The stranger then reappeared at the doctor's office. "You cured my woman, didn't you?" He reached in his pocket, threw three twenty dollar gold pieces from the Clark and Gruber mint on the doctor's desk, and asked, "Will this pay you for what you did?" Dr. Cass picked up the money and replied, "Yes sir, and much obliged." The rough character looked him in the eyes and spoke in an earnest way: "See here 'Doc,' I've taken a liking to you. There's a lot of rough fellers here, if any of them make trouble for you or even bother you just send for me and I'll take care of them. My name is Charley Harrison."[30]

On February 26, 1861, Congress passed an act creating the Territory of Colorado. The first governor was William Gilpin, a military man who began his duties by organizing an army. The Civil War had started two months before the arrival of the governor and the creation of the new territory.[31] Sympathies among the settlers were divided; the Confederate flag was unfurled from the top of one of the stores in Denver on April 24, 1861, but it was quickly torn down by a group of angry citizens.

The First Colorado Regiment of Volunteers was formed with the following physicians assigned to the troops: Dr. John Hamilton, surgeon; Dr. W. H. Farner, examining physician; Dr. Larkin Tolles, assistant surgeon; and Dr. Eggerton Perry, second assistant.[32]

[25] *Trail Magazine*, Denver, Vol. III, No. 8, pp. 7-10.

[26] Arapahoe City was a placer camp on Clear Creek, a short distance below Golden, Colorado. It was organized in 1859 by Samuel Curtis and Thomas L. Golden and had a population of four hundred in 1860. Migration to the mountains left the town deserted and it soon passed into oblivion.

[27] Another duel was fought on the soil of Colorado on October 19, 1859, between Richard E. Whitsitt and W. P. McClure.

[28] Ramsburg, George J., "Dust and Nuggets," *Trail Magazine*, Denver, Colorado, Vol. XIX, No. 1, pp. 11-12.

[29] Mountain City was established in 1859 near Central City and grew into a population of eight hundred inhabitants in 1860, but it was soon absorbed by Central City.

[30] Charley Harrison, head of a group of desperate men, was an excellent shot with a revolver and had several notches on his gun, but he met his death by a revolver in a fight with one Jim Levy.

[31] The Territory of Colorado was created out of parts of Kansas, Nebraska, New Mexico, and Utah, all of which were then U. S. Territories.

[32] These physicians were mustered for pay February 28, 1863.

Dr. John Evans
(Courtesy of Denver Public Library Western Collection)

Dr. Charles Fox Gardiner
at 80 years of age.
(Courtesy of Dr. Bradford Murphey)

Dr. John Evans, appointed second territorial governor, was a prominent physician, teacher, promoter, and educational founder.[33] He came to Colorado during one of its most critical periods in history – the Civil War, Indian depredations, floods, and fires all kept him too busy to practice medicine. No laws existed at this time to regulate the licensing of physicians.[34]

Many of the territorial physicians wore stubbled beards and mustaches which were in keeping with the flair of frontier life where they practiced among the mixture of races, which consisted of Indians with their belief in the efficacy of the medicine man, the Spanish Americans who worshiped the last decadent days of their ancestral glory, the trappers and mountain men with their own brand of medicine and surgery, and the tough element – men and women who came to claim their share of easy wealth.

The end of the struggle between the States caused a number of physicians to search for adventure during the rebuilding of a nation which appeared to take a western trend with an increase in population calling for a more rapid means of transportation, such as the appearance of the stagecoach, the swift pony express, and the iron horse – all forerunners of the modern jets bringing to an end the picturesque days of covered wagons drawn by oxen and mules.

One of the most colorful physicians who practiced medicine in the mountainous regions of Colorado was Charles Fox Gardiner (born in 1857, died in 1947).[35] Dr. Gardiner, a graduate of the Bellevue Medical College, came to Colorado in 1882, and located in Crested Butte, which is located at an altitude of 9,000 feet.[36] Dr. Gardiner remained in Crested Butte for two years, then

---

[33] Dr. Evans founded Northwestern University at Evanston, Illinois (which was later named for him), and was one of the founders of the University of Denver. He served as Governor from 1861 to 1865.

[34] Texas, in 1873, was the first state to have a licensing board. Nevada was the first western state to have such an act passed, in 1875. Colorado passed an act in 1881; it was amended in 1915 to license chiropractors. In 1917, an act was passed forbidding the splitting of fees. In 1927, an act was passed requiring those who applied for license to be graduates of schools of the healing arts.

[35] Letters from his daughter, Dorothy Gardiner Hemming, and his son, Raynor M. Gardiner, obtained through the foresight and untiring efforts of Dr. Bradford Murphey.

[36] Crested Butte, in Gunnison County, took its name from a nearby mountain top which resembles a cock's comb. The town was founded in 1879 by Howard F. Smith and began as a gold camp until coal was discovered in the 1880's. Burros were used to bring ore down from the mountain slopes. In 1880, the town had a population of 250, a hotel, and a newspaper.

moved to Meeker, Colorado, where he remained until 1895.[37] He moved to Colorado Springs and practiced medicine there, devoting most of his practice to the treatment of tuberculosis, for Colorado was at that time a mecca for consumptives. Dr. Gardiner made many contributions to the treatment of tuberculosis, among the most outstanding was the so-called Gardiner Tent, a circular affair open at the top. This tent was used in this country as well as in many European countries. Dr. Gardiner's autobiography is in book form: *Doctor At Timberline.*[38]

Gardiner tents, designed by Dr. Charles Fox Gardiner. (Courtesy of Dr. Bradford Murphey)

Another prominent physician of Colorado Springs was Dr. William A. Bell, whose activities were numerous outside of the field of medicine. He was one of the founders of the D. & R. G. RR and was associated with Gen. William J. Palmer. Dr. Bell was born in Connell County, Tipperary, Ireland, on April 26, 1841. He obtained the degree of Doctor of Medicine at Cambridge and practiced at St. George's Hospital in London before coming to Colorado in 1867. He was a founder of the Colorado Coal & Iron Company in 1879, which made the first iron and rails in the state. The company was consolidated with the Colorado Fuel Company to form the Colorado Fuel and Iron Company.

Dr. Bell was associated with the founding of such towns as Colorado Springs, Manitou, Durango, and others; he constructed the original Antlers Hotel in Colorado Springs. Dr. Bell left this country March 1, 1920, and died at Pendell Court, Bletchinglry, Surrey, England, in July, 1921.

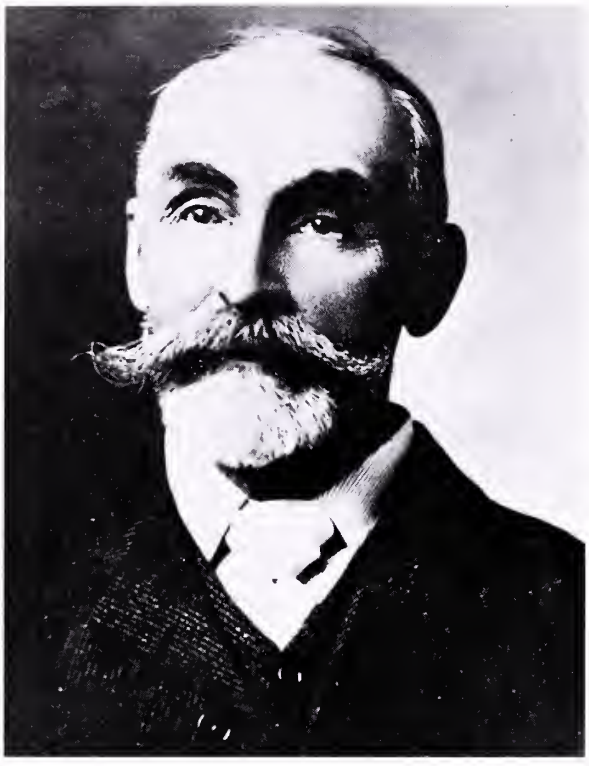
Dr. C. A. Roberts of Mountain City acted as prosecuting attorney in the Miner's Court; he also recorded claims, deeds, and bills of sales, and became acting editor of the *Gold Reporter.*[39]

Dr. J. Reid had the first drugstore in Canon City; he began there in 1860. He was a good physician and a perfect gentleman, a Southern sympathizer who cared for Unionists and Con-

[37] Meeker was named for Nathan C. Meeker, who was massacred by the Ute Indians at the White River Agency in 1879. A military post was established on the White River and was known as "Camp on the White River." It was four miles above the ruined agency. The camp was abandoned in 1883 and the buildings were sold to the residents of the valley, which was the beginning of the town. It was incorporated in 1885.

[38] The Caxton Printers, Ltd., Caldwell, Idaho, 1938.

[39] Brown, Merritt, "Digging Doctors," *Colorado Magazine,* Denver, Colorado, Vol. XXXVI, No. 4, pp. 241-245.



Dr. William A. Bell
(Courtesy of Denver Public Library Western Collection)

Dr. Jacob Rice
from the Harlan Family Album
(Courtesy of Don and Jean Griswold)

Conveyance used by Dr. Rice for making house calls.

federates alike. One time he could not get a horse in order to call on a sick patient some fifty miles away and had to walk to see the charity case. He moved to Black Hawk and was known as the "poor man's doctor and friend."[40]

Another disciple of Hippocrates practicing at high altitudes was Dr. Jacob E. Rice, who had a unique method for comfortable travel in the arid region of Twin Lakes, Colorado.[41] In 1881, he helped to promote and finance a toll road from Twin Lakes to Aspen, obtaining a twenty-year charter. The road was opened in 1882, making the town of Twin Lakes a great freighting center. The road was in operation until 1887, when the D. & R. G. RR was built into Aspen.

The most interesting account of Dr. Rice and his activities has been related by Patrick J. Ryan, a blacksmith in Twin Lakes:

> Our Doctor was "Old Dr. Rice" – He was a familiar figure on the road, with one horse hitched to a small sleigh. The sleigh was enclosed with a framework of boards, making a small house on runners. In the front right hand corner was a small stove with a little crooked pipe sticking out the top. He carried his supply of stovewood with him, so regardless of the weather he was comfortably warm.[42]

Another story about Dr. Rice was related by Patrick Ryan concerning an emergency where a blacksmith acted as the surgeon:

> One day during the summer of '84 we had some excitement when one of our young men who was in love with one of the girls at the hotel found himself a jilted suitor. He had been drinking a little too much and suddenly grabbed a razor and started slashing his throat. He did a fairly good job and it looked for a time as though it was the end. Then Dr. Rice arrived, but was too nervous to sew the man's throat, so I told him if he would tell me how, I knew I could do it. So there I was, a blacksmith sewing up a man's throat.[43]

Another one of the diseases that was peculiar to the miners who worked at high altitudes was the so-called "Steven's Gripes," which came to light in 1860 from the mining regions of McNulty's Gulch near the mountain range which divides the Arkansas and the Blue Rivers. It is above timberline, higher than 11,000 feet. All the dogs and cats died within three months. All the post-mortem examinations showed that the stomach and intestines were full of half-digested foods; men, women, and children were affected. Ozone was held responsible, producing paralysis of the gastrointestinal tract. One death was reported in a thirteen-year-old child.[44]

Dr. Frederick J. Bancroft was born in 1834, in Enfield, Conn.[45] He was educated in the Academy in Westfield, Massachusetts, and at a Seminary in Charlotteville, New York. He was graduated in medicine from Buffalo University in 1861, enlisted in the army that same year, and was post surgeon at Fort Monroe, serving to the end of the war. Dr. Bancroft came to Denver in 1866 and was physician to the Wells Fargo Company stage lines. He also was city physician for Denver, first President of the Denver Medical Society, President of the Colorado Medical Society in 1880, the first President of the Colorado State Board of Health, and President of School District No. 1 from 1872 to 1876. He was one of the founders of the State Historical Society of Colorado and served as its President until 1897. He was a prominent physician who had a great deal of influence in the early development of Denver and anecdotes have been told by Dr. J. N. Hall concerning this well-known physician.[46]

Dr. Bancroft was a legend in the Queen City during the horse and buggy days. As he used this slow method to make his calls, a faithful dog trotted under the buggy and when the Doctor went

---

[40] Benckley & Hartwell, *Southern Colorado,* Canon City, 1879, pp. 81-82.

[41] Twin Lakes, located at the base of Mt. Elbert in Lake County at an altitude of 10,000 feet, merged into the town of Dayton in the 1860's and became the county seat, which was moved to Granite in 1868. Twin Lakes began in 1879 as a mining camp; it later became a freighting center for the route over Independence Pass toll road (then known as Hunter's Pass) to Aspen. The town became known as Twin Lakes Village, named for the nearby lakes.
Griswold, Don and Jean, "Mountain Hostelries, Early Twin Lakes Style," *Brand Book of the Denver Posse of The Westerners,* Vol. 11, 1955, pp. 325-372.

[42] Ryan, Patrick J., "Patrick J. Ryan Remembers; New York Boyhood and Manhood and Early Days in Twin Lakes, as told to his Daughter Ethel (Sue) (Mrs. George) Nicholson," Privately Printed by the Ryan Family, 1943, 16 page pamphlet.

[43] *Ibid.,* (See also *Colorado Magazine,* Vol. 21, p. 199.)

[44] Pollock, J., "Report on Diseases Peculiar to High Altitudes," *Transactions of the Colorado Territorial Medical Society,* Sept. 24, 1872, p. 26.

[45] Dr. Bancroft died in San Diego, California, January 16, 1903. See: *The Colorado Medical Journal,* Vol. IX, No. 2, February, 1903, pp. 64-65. Editor's Note: To avoid duplication, pictures of Dr. Buckingham and other pioneer physicians who served as Presidents of the Colorado Medical Society appear only with their biographies, later in this publication.

[46] Hall, J. N., *Tales of Pioneer Practice,* Privately Printed, Carson Printing Co., Denver, 1937.

into a house, the dog would jump on the cushions of the buggy with his dirty feet and rest. This irritated the Doctor who could not keep the canine from getting dirt over the seat. He resorted to an ingenious method of keeping the dog from utilizing the cushion – he took a piece of leather and drove tacks into it, and when he went into a house he would throw it over the cushion. The first stop he made, the dog jumped on the tacked cushion and came out of the buggy with a loud yelp! Dr. Bancroft thought he had solved his problem, but when he climbed in the buggy *he* hit the tacks with his 300 pounds and did everything but yelp!

Dr. I. B. Perkins related this story to the writer: Dr. Perkins began his practice with Dr. Bancroft, who kept evening hours. Dr. Perkins had the duty of going back to the office every evening to care for those who could not come during the day. After one of the sessions he was relating to Dr. Bancroft the events that happened. He said, "I pulled a tooth. You pull teeth, don't you?" Dr. Bancroft thought a moment and then spoke with a long drawl: "I used to, but don't any more for it takes too much time. You see, Dr. Perkins, a big Swede came in who was working on the section with a cavity in one of his lower molars. I put on the forceps and twisted and yanked and pulled until the tooth let loose and I knocked out two of his front teeth. It took me two hours to explain why the other two teeth had to come out, so I decided it took too much time to pull teeth."

Dr. Bancroft was so heavy he would break the springs of the ordinary buggy; a board had to be placed under the body to prevent the springs from giving away. Many incidents have been related concerning this pioneer man of medicine who was a familiar figure in early Denver.

A group of Colorado Territorial doctors in front of McCormic and Shallcross Drug Store, Denver, September, 1873. (Courtesy of State Historical Society of Colorado)

Dr. A. G. Bracker, who came to Denver in 1868, was adept in foot and bicycle racing. He studied law in the office of John F. Shafroth and later took up the practice of medicine.[47]

Dr. Russell Jarvis Collins arrived in Empire, Colorado in September, 1866;[48] one year later he moved to Georgetown,[49] and in 1879 moved to Leadville during the time of the great rush.[50] He was appointed to the Board of Medical Examiners by Governor Pitkin.

[47] *Trail Magazine,* Denver, Colorado, Vol. XI, No. 6, p. 28.

[48] Empire had a population of 800 and was named after the nickname of the state of New York; it was first called Valley City.

[49] Georgetown, named after the man who first discovered gold at this site, George Griffith, had a population of 5,000.

[50] Leadville, called California Gulch, Boughtown, Slabtown, Cloud City, and Harrison, was named Leadville by H. A. W. Tabor on January 14, 1878, because of the lead ore found in the area.

His son, Dr. William Russell Collins, practiced in Idaho Springs, Victor, and Leadville, in the latter place from 1893 to 1896. He followed the boom to Alaska in 1897. From 1902 to 1912 he was in charge of St. Joseph Hospital in Georgetown; he retired from practice in 1912 and moved to Denver.

Dr. William Ruddick Whitehead, a peripatetic physician who served in the Russian Army during the Crimean War and practiced medicine in Paris, France, joined the Southern forces during the Civil War, was taken prisoner by the Union Army, but made his escape and returned to the Confederate lines.

Dr. Whitehead came to Denver in 1872 and lived at the American House for four months.[51] He had an office on Blake Street and made his rounds with horse and buggy. He was prominent in civic affairs, was elected alderman from the 6th ward, and was instrumental in getting a bridge built across the Platte River at 19th Street during his two-year term in office.

He became friends with ex-Governor Gilpin and Dr. Bancroft; he met the latter through Dr. Bancroft's father-in-law, Mr. George A. Jarvis of New York.[52] He knew the Rev. J. P. Machebeuf and mentions him in his biography, along with others.[53]

Dr. Whitehead left Denver and resumed practice in Paris, France, where he remained for two years. He returned to Denver in 1879 during the height of the bicycle rage and helped to form a mounted escort for President Grant from the railroad station to the Glenarm Hotel.[54]

Shingles and Advertisements

It is interesting to note some of the signs which appeared on the offices of some of the early physicians and the advertisements which were placed in the *Rocky Mountain News* prior to the organization of any medical society.

The physician's name appeared with these Latin words *Doctoris Medicane,* with a notation underneath which read: "Money down is required." In some instances the mortar and pestle was displayed over the name with this Latin inscription: IN HOC SIGNA VINCES.

The advertisements were of a varied nature, for example the one previously noted by Dr. A. F. Peck[55] and these:

> Dr. G. M. Willing – Offers his professional services to the citizens of Auraria and Denver residents at Mr. Dolman's in Denver. Dr. Willing will give you pills and powders to your hearts content.[56]
>
> G. M. Willing, M.D. late of Missouri has been mining for some months past in the "Goose Pasture" diggings near Gregory's. He is a practical miner, good geologist and a polished gentleman.[57]

> Dr. J. W. Smith, M.D.
>
> Physician and surgeon, offices one door east of Apollo Hall, upstairs, Denver City, K. T. Dr. Smith is prepared to perform any dental operations desired.
>
> We the undersigned, being acquainted with Dr. Smith and his mode of practice most cheerfully recommend him to the confidence of the public as a man of integrity and skill as a medical practitioner possessing the advantages of twenty-five years of active practice – the last eight years in New York City.
>
> J. S. McCade M.D.
> Nevada Gulch
> A. M. Smith M.D.
> Mountain City
> E. Fitzgerald M.D.
> Arapahoe
> C. R. Bissel M.D.[58]
> Mountain City

---

[51] Biography in manuscript form in the Denver Medical Library.

[52] Jarvis was one of the founders of Jarvis Hall, a school for boys in Golden, Colorado, established by Bishop Randall in 1869. In 1870, the legislature made the school a territorial institution which later became the Colorado School of Mines. The original name was given to it in appreciation of Mr. Jarvis who helped to raise money for the founding.

[53] Rev. Machebeuf, who arrived in Denver in 1860, later became a Bishop and had charge of the Catholic Missions in the region.

[54] There were numerous bicycle clubs over the State and there were some twenty-five thousand wheelers in Denver at that time.

[55] *Op. Cit.*

[56] *Rocky Mountain News,* September 10, 1859.

[57] *Ibid.*, September 29, 1859.

[58] *Ibid.*, November 10, 1859.

Dr. Rowan of Ouray used his famous medicine called Rowan's Pills; he had a specific pill for every known disease and he threatened to send everyone who did not take his pills in the spring to "Rowan's Ranch." ("Rowan's Ranch" was the cemetery.)

One of the physicians residing in Boulder, Colorado ran this advertisement:

> Chronic diseases a specialty, such as Cancer, Dyspepsia, Dropsy, Deafness, Nervous Diseases, Rheumatism, Spinal Diseases and Paralysis; also Diseases of the throat, Lungs as a class: having the right use of Dr. Hatfield's Equalizer and Dr. Barauncheidt's Resuscitator.

Dr. H. W. Allen of Boulder ran this ad in a Boulder County paper recommending:

> Allen's Family Medicines such as:
> " " Magic Relief
> " " Worm Lozenges
> " " Cough Balsam
> " " Toothache Drops
> " " Liver Tonic
> " " Concentrate Essence of Jamaica Ginger
> " " Little Giant Liver Pills

The 1859 City Directory of Denver listed eight physicians: Barck, G. W.; Clark, J. M.; McDowell, Drake; McLaughlin, D.; Peck, A. F.; Russell, L. J.; Steinberger, C. M.; and Wilcox, S. Only one carried an advertisement: "Dr. G. W. Barck, Physician and Surgeon, Larimer Street between E and F streets, Denver City, Jeff. Terr."[59]

The 1866 Directory listed the following physicians: Dr. R. G. Buckingham, Drs. McClelland and Strode, Dr. F. J. Bancroft, Dr. S. W. Treat, Dr. M. L. Scott, Dr. J. Ermerins, Dr. Tossier, Dr. Bailey, Dr. Elsner, Dr. Rust, Dr. L. L. Adams, Dr. E. C. Gehrung, and Dr. C. A. Gordon.[60]

Left to right: Medicine Case, saddle bags, and medicine glass. (From the author's collection)

[59] *Denver City and Auraria, The Commercial Emporium of the Pike's Peak Gold Regions*, 1859, 44 pp.

[60] Wilhelm, D. O., *History of the City of Denver, Business Directory of the City*, Byers & Dailey Printers, *News* Office, Denver, 1866, 184 pp.

The following advertisements appeared in the 1866 Directory:

F. J. Bancroft, Physician and Surgeon, Office on Larimer Street, between F. and G.

Dr. S. W. Treat, Eclectic Physician and Surgeon, Office on Larimer Street between F and G. Residence corner Curtis and H streets, Denver, Colorado.

M. L. Scott, M.D. Homeopathic Physician and Surgeon, Office on Larimer Street between F and G, Denver, Colorado.

Dr. G. W. Bailey, Physician and Surgeon, Office on Front Street between Blake and Fourth, Denver, Colorado.

Formation of Societies

An aura of greatness enshrouded some of the early physicians who came into the region. Those descendants of Hippocrates were without smallpox vaccine, diphtheria antitoxin, polio and typhoid vaccine, or insulin. They knew nothing of open heart surgery, aortic replacements, corneal transplants, the aids of neurosurgery, or any of the modern laboratory procedures. They adhered to the clinical doctrine of *Primum Non Nocero* (first do no harm). They had to depend on their powers of observation, experience, and the faith they had in their ability to deal with the diseases that existed at that time. They took what they had and used the knowledge they possessed to the best of their ability, making use of their hands, ears, eyes, and mind. They were dedicated men who took time to examine their patients. These physicians were the advance guard in creating organizations for the better interests of themselves and their patients.

JEFFERSON MEDICAL SOCIETY

[Denver] "June 4, 1860.

"The Society met pursuant to adjournment, and was temporarily organized by placing Dr. McDowell in the chair.

"The constitution and by-laws were received and adopted.

"The following officers were then elected for the ensuing year:

"President, W. M. Belt; Vice President, Drake McDowell; Treasurer, J. J. Saville; Secretary, S. E. Kennedy; Curators, the officers with Drs. J. F. Hamilton, A. Cass, and S. Rankin.

"Dr. Kennedy, from the committee on ethics and fees, advised the adoption of the National Code of Medical Ethics, and the following Bill of Rates, which, with amendments, is as follows:

"For a visit in the city, $3.

"For a visit in the country, per mile, $1.50.

"For a visit at night, or in stormy weather, double the above rates.

"For a consultation, mileage extra, $10 to $25.

"For performing any of the capital operations, $50 to $500.

"Reducing a Luxation, $10 to $100.

For any of the lesser operations, $10 to $25.

For tapping, dressing ulcer, applying bandage, introducing catheter or pessary, cupping, etc., $5 to $10.

For delivering a woman in natural labor, $25 to $50.

For a preternatural or instrumental delivery, $50 to $200.

For a prescription, medicine extra, $2 to $20.

For auscultation and percussion, $10 to $50.

"For curing a gonorrhea, $20 to $50.

"For curing syphilis, $25 to $100.

"Prescribing for gonorrhea or syphilis, $10 to $20.

"For reducing a simple fracture, $10 to $50.

"For reducing compound fracture, $50 to $200.

"Every member of the faculty is expected to close the account due him immediately on the recovery of the patient, either by having the money paid or taking a note drawing interest at the rate of at least ten per cent. per month. And unless a patient is a bona fide resident the fees should be paid when the visit or other service is made.

"After the discussion of various subjects the society requested the **News** and [the] **Herald** to publish the proceedings, and adjourned to meet on Monday, June 11th."

"W. M. Belt, Pres't."

"S E. Kennedy, Sec."

The first attempt to form an organization began with the advent of the Jefferson Medical Society, organized June 6, 1860, with the following physicians: Dr. W. M. Belt, President; Dr. Drake McDowell, Vice President; Dr. J. J. Sevelle, Treasurer; Dr. S. E. Kennedy, Secretary; Dr. J. F. Hamilton, Curator; Dr. O. D. Cass, Curator; and Dr. S. Rankin, Curator.[61] A constitution and by-laws were adopted, along with a bill of charges to be made for patients with various

[61] At this time the population of the Territory of Jefferson was about 8000 inhabitants.

diseases. Many physicians were devoting all of their time to medicine instead of prospecting for gold. The Society went out of existence in 1861 when the first guns belched out their blasts starting that destructive conflict between the North and the South.

In retrospect, the genetic unfolding of the practice of medicine by organized societies began to crystallize and be elevated by the influx of physicians from every part of the United States. Such variety of ability, and some unethical conduct, made it necessary to form a society to establish a code of ethics.

The next medical society was formed as the Denver Medical Association on September 24, 1864, by the following: Drs. Eugene C. Gehrung, W. F. McClelland, E. C. Strode, Field, and Gant. This organization was of short duration. Four years later, in 1868, the first Colorado Territorial Medical Society was formed. It also existed only about one year.

These early Men of Medicine were faced with an immense wilderness where the habitation was rough and living was under the most primitive conditions with no form of sanitation or public health controls. They were of a stoical fortitude in their duty of caring for the sick; they were possessed of pioneer qualities and had the ability to adjust their lives to the raw, untamed frontier of the new West.

The next formation of a society began April 4, 1871,[62] and was completed one week later on April 11 in the office of Dr. R. G. Buckingham, when the first Denver Medical Association, which had suffered and apparently died from lack of interest, was reactivated. It is the direct lineal ancestor of the present Denver Medical Society, and its first roster was composed of Drs. Buckingham, W. F. McClelland, F. J. Bancroft,[63] A. L. Justice, D. Heimberger, A. Stedman and John Elsner.

Amputating set used by Dr. Edward Mugrage, Denver, Colorado. (From the author's collection)

[62] In 1871, the Denver streets were lighted by gas.

[63] Dr. Fredrick J. Bancroft was a huge man; he stood six feet four inches in his stocking feet, weighed three hundred pounds, wore a number eight hat and size twelve shoes.

Later that summer, officers of the Denver Medical Association invited other physicians of the Territory to join in reorganizing a Colorado Medical Society, and this was done on September 19, 1871;[64] that meeting became the first Annual Session of the Colorado Medical Society celebrating its centennial. The development of that first Session is well covered by Mrs. Judith Hannemann elsewhere in this publication.[65]

Another organization was formed in Trinidad, Colorado on March 4, 1874 and incorporated under the name of The Rocky Mountain Medical Association. It was composed of the following members: Drs. Michael Beshoar, Thomas E. Owen, Edward H. Wirt, John Russell, Benjamin Dennis, Pembroke R. Thomas, R. A. Longwell, and J. J. Saville.

Trinidad was a distributing point for Mexican trade in the southern part of the Territory. In 1873, the town had twelve stores, two hotels, four churches, three flour mills, three physicians, and four lawyers. The enormous outcropping of the coal fields had not been developed.

BY-LAWS

OF THE

ROCKY MOUNTAIN

MEDICAL

ASSOCIATION.

NEW MEXICO

Territorial Medical Society.

PRINTED BY URBANO CHACON,
TRINIDAD, COL.;
1875.

... The Board of Trustees shall have power to transact any and all business of the Association during the intervals of its meetings, subject to the approval of the Association at its next meeting.

ARTICLE V.

(MEMBERSHIP.)

SECTION 1. The requirements for admission to membership in this Association shall be,

1st. That the applicant shall be a regular gradnate of some legally constituted, reputable school of medicine, recognized as such by the American Medical Association; or shall pass a successful examination before a Board of Examiners appointed by this Association, on Anatomy, Physiology, Materia Medica, Chemistry, Medicine, Surgery and Obstetrics, and must produce satisfactory evidence that he has been actively engaged in the practice of medicine for a period of not less than four years next prior to such examination.

2d. He must possess a good moral character, and must have been a resident of Colorado or New Mexico at least six months next prior to his application.

3d. He must possess a good common school education, and such a knowledge of Latin and Greek as will enable him to read the technical terms ordinarily used in medical books intelligently.

ARTICLE VI.

(FEES.)

SECTION 1. The admission fee to this Asssociation shall be five dollars.

SEC. 2. Each member shall be subject to an assessment of five dollars per annum, to pay debts of the Association, in case there should not be sufficient funds in the treasury to discharge such debts without an assessment on the members.

ARTICLE VII.

Cover page and excerpt of the By-Laws of the Rocky Mountain Medical Association illustrating the membership qualifications and dues of the early organizations. (From the author's collection)

In 1874, the Boulder County Medical Association was formed with Dr. H. O. Dodge as the President.

There have been many honored names in the medical profession through their dedication and ability. They grew with and helped to develop Colorado into a great state. Their history has been

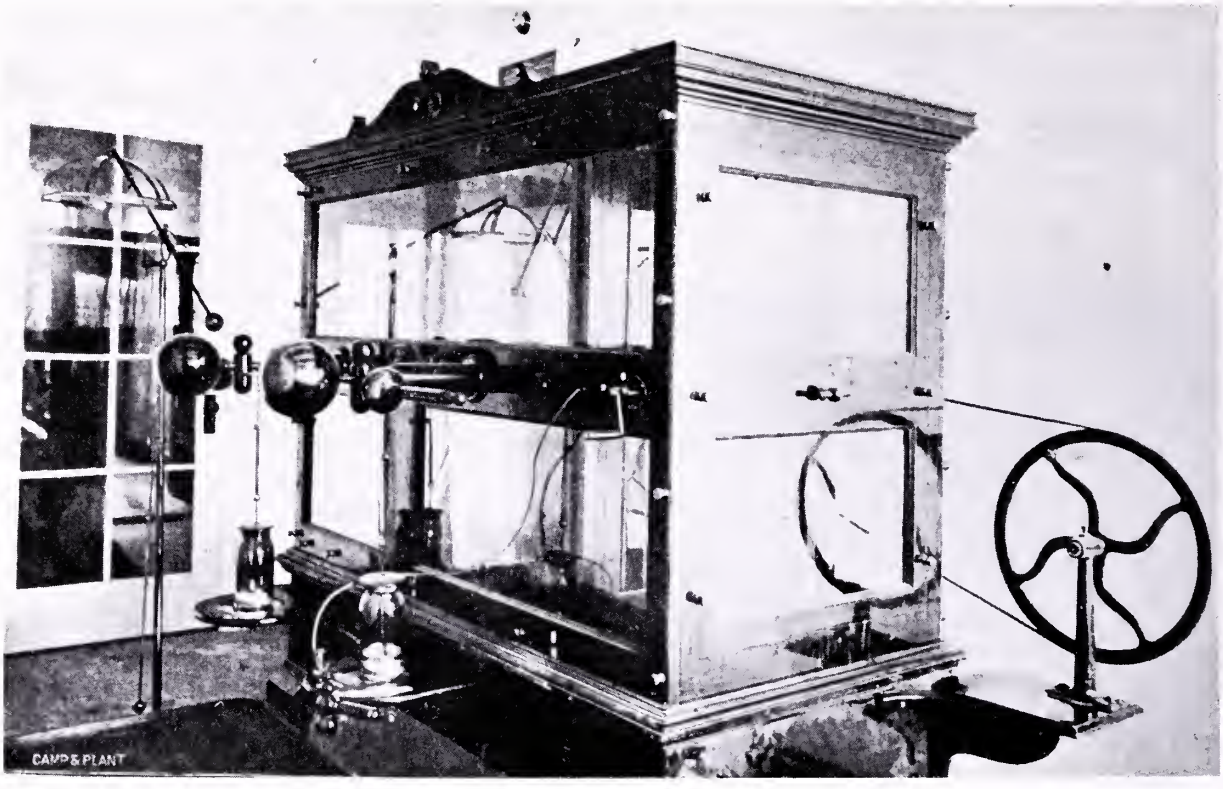
[64] *Report of the Meeting for the Organization of the Territorial Medical Society Held in Denver, Colorado, Tuesday September 19, 1871, including the Constitution and By-Laws adopted by the Meeting*, Dailey, Baker & Smart, Printers, Denver, 1871, p. 10.

[65] See "Birth of the Colorado Medical Society."

a glorious one for they brought life into this mountain region and helped to mend broken and sick bodies; they lit the torch of high ideals to light the way for others.

Roentgenology

The lives and services of some of the pioneers in medicine resemble the sifting grains of sand in an hourglass of time, which have drifted through the years and developed into modern methods in treating the sick. This has been forcefully demonstrated by the use of the x-ray which had an early birth in Colorado shortly after William Konrad Roentgen made his memorable discovery on December 28, 1895.[66] A few Colorado physicians, scientists, photographers, and physicists began building and experimenting with various types of machines to prove the value of x-ray in the practice of medicine.[67] Among the early scientists to use such machines were the following: Dr. George H. Stover,[68] Dr. Chauncey Tennant, Jr., Dr. E. P. Hershey, Dr. S. B. Childs, Sr., and two electrical engineers, Professor William Strieby and Professor Florian Cajori. The two professors were from Colorado Springs. They did a great deal of work to prove the value of the use of the x-ray and continued after the turn of the century.[69]



Typical early x-ray apparatus: the glass cabinet enclosing a static wheel turned by hand with the outside pulley, Leyden jar condensers, large spark-gap balls and a Crookes tube; a 1902 photograph. (Courtesy of Denver Public Library.)

When the present generation of physicians gaze upon the great Rockies in all of their majestic beauty and grandeur – the first dry land to be lifted from the waters of the continent – they might consider those rugged mountains as monuments dedicated to commemorate the memories of the early medical men who were faithful to every trust, tender in their sympathies, and lofty

[66] William Konrad Roentgen discovered the x-ray in 1895 and published the first picture, which was a hand, in 1896.

[67] Shortly after the discovery, x-ray machines were manufactured in Chicago by Rome V. and Thurman Wagner. They united with Schidel Xray Co. who later joined the Victor Xray Co., finally becoming the General Electric Xray Corporation. Vacuum tubes were manufactured by Emil Grubbe of Chicago.

[68] Dr. George H. Stover was graduated from the Denver Medical University in 1893, the New York Medical School and Johns Hopkins in 1899. He did some early work in x-ray techniques and had burns on both hands. Dr. Stover was born in Fort Collins, Colorado on March 8, 1871, and died in Baltimore, Maryland on March 25, 1915.

[69] Wasson, Dr. W. W. and Stein, W. W., "History of Colorado Pioneers in Radiology," Manuscript compiled 1931-1932.

in their ideals and character. Theirs is a story of human endeavor, a touch of realism. Even though they have passed from the Western scene, the place of their previous existence still reflects their presence where they struggled with the crippled, the sick in epidemics, and the desolate poor. There is still an untold story of their struggles. Their history will never be fully written, for their hands are still, their lips forever sealed; they rest under a cloudless sky, some in the embraces of prairie sod, others in a panoramic setting of pine, spruce, fir, and aspen where the murmuring flow of mountain streams fall and tumble in their onward rush to join the mighty ocean.

The Divine Hand which created the masterpieces of earthly beauty weighted down with scenic grandeur will no doubt guide them in their eternal rest. Their very names mark more than a century of time which began in the spring of their youth and continued to the autumn of their age. Their lives are blended into a harmonious setting with other pioneers who passed with descending curtain of civilization which closed the frontier of the great West.

The early physicians pushed beyond the confines of safety into a life of hardships and privations, into a raw, undeveloped country where sacrifices were demanding and dangers were evident. The dark hand of destiny forced many of the physicians into an early grave, for life was steep and arduous.

The state of Colorado no longer wears the crude mantle of its formative years; cities, colleges, churches, and hospitals dot the scenes where once stood the Indian tipis and where grazed countless herds of buffalo. And tall skyscrapers now point militantly heavenward (and sometimes into a layer of smog!) where prairie bunch grass and an occasional cottonwood tree alongside the South Platte and Cherry Creek form the only "scenery" east of the foothills.

There are no lavish displays or monuments to keep alive the activities of the early men of medicine, no towering shafts or inspiring slabs of marble or granite to commemorate their memories. It does not require a great deal of imagination of the present generation of physicians to conceive of the privations and dangers they endured. They had so little to work with, yet they gave their all in the trying days of a raw frontier life. They faced their duties with an unfaltering courage, their early organizations were primitive in development, yet the vexing circumstances which confronted them never altered their loyalty or duty in caring for the sick. The full honor and glory of the early physicians will not come with the end of the first century of the present organization but will be perpetuated by future generations. Their names will brighten the pages of medical history. Some of their names are engraved on tablets in the corridors of a few hospitals and their faces adorn part of the walls of the Medical Library. They pushed on, advancing step-by-step to this modern era of organ transplantation. Time has not obliterated their trails that were made when Colorado was young and undeveloped. They left their footprints in the drifting sands of time which have cut deep as imperishable records in the annals of medical history.

The early physicians were a part of nature's noblemen and were vital factors in the building of the country; they were not paragons, but were essentially human and had their faults with other men. They gave the best years of their lives to the welfare of the people and left the country in their debt, for the pioneer men of medicine gave more than they ever received in return. The early physicians of Colorado rendered valuable services to the country they loved for they were men of the people. Some of them lived through the transition period from the gold rush to the close of the cattlemen's epoch and the changing order when frontier roughness was vanishing its way toward civilization.

A little more than a century has passed but much has been accomplished in the protection of the health of a populace and in the care of the sick which began with the early men of medicine who carried the torch and banner of the crusader, for they lived like true pioneers and adapted themselves to the rigors of the climate and the lawlessness of a rough element. They gave their all, blending their lives into a harmonious setting until the slowly descending curtain of life dropped upon their professional careers, wafting them into that place of eternal rest, where no doubt they will be born again in the limitless future.

———————

AYERS
1971

Birth of the Colorado Medical Society

Judith Hannemann*

AS SOON as the structure of the Denver Medical Association was down on paper and there were officers to conduct the duly recorded proceedings in the spring of 1871, it was time for Denver physicians to look at the profession's needs beyond their own city. In the thirteen years following the first gold discovery along the sandy banks of the South Platte River, Colorado had grown from a wilderness to a Territory with a population of 39,842.[1] More people meant more doctors. With statehood on the horizon, the physicians of Colorado needed the fraternity, certified credentials and continuing scientific education provided by a professional society.

Five members of the Denver Medical Association agreed to take charge of arrangements for a convention of all physicians practicing in the Territory. W. H. Williams, W. F. McClelland, H. K. Steele, A. Stedman and H. O. Dodge planned the convention's proceedings from the opening prayer of invocation to the final dinner celebration at Ford's Restaurant.[2]

W. H. Williams, a consumptive, took personal interest in organizing a Territorial medical association. He had served four years in the Confederate Army, graduated from the University of Louisiana in 1867 and settled in his home town of Lexington, Mississippi, to practice medicine. Two years later he was westbound in search of the cure. His lung hemorrhages ceased while he was passing through a small town named Denver on the eastern side of the Rocky Mountains and he decided to stay there. His life, if not his health, was indebted to the Colorado climate and he never intended to forget the debt.[3]

After graduation from the Jefferson Medical College in 1849, William F. McClelland had practiced in Council Bluffs, Iowa, for several years. There was just something about taking a chance and going West that appealed to him. In June of 1862 he arrived in Denver to accept a new job as surgeon of the Denver Military Hospital. Within two years, his fortunes flourished with an appointment as permanent medical examiner of Equitable Life Assurance of New York for Colorado, Wyoming, and New Mexico.[4]

Forty-six-year-old Henry K. Steele was the most recent member of the Denver Medical Association to reach Denver. Upon receiving his M.D. from the University of New York in 1848, he went back home to Dayton, Ohio, where he practiced medicine for twenty-three years. Service in the Forty-fourth Ohio Volunteer Infantry expanded his world enough that he was not willing to settle into his old ways after the War ended. In February of 1871 he came to Denver and began practicing.[5] Because he had been a member of the American Medical Association for twenty years, his ideas on organizing a medical society were invaluable to the planning committee.

Arnold Stedman's education at Colby University had been interrupted by the Civil War. After service as Orderly Sergeant of Company K, Twenty-second Regiment of the Maine Infantry, he graduated from the Berkshire Medical College in 1865 and opened an office in Dexter, Maine.[6] He was thirty-one years old with nothing to lose and a wanderlust to satisfy when he first saw Denver from the top of a six-horse Concord coach on an April Sunday morning in 1870.[7]

Horace O. Dodge had been matriculated in Wheaton College one month when he volunteered for service in Company E of the Eighth Illinois Cavalry. He finally graduated from the Chicago Medical College in 1868 and worked for three years in the Chicago Hospital for Women and Children until a yen to see the West brought him to Colorado in January of 1871.[8]

By the end of July, these five physicians had mailed two hundred invitations to doctors in the Territory. The invitations summoning physicians to attend a convention in Denver on September 19, 1871, went as far west as the high country towns of Central City, Idaho Springs, Black Hawk and Georgetown, as close as Golden nestled in the foothills west of Denver and south to Pueblo beside the wide banks of the Arkansas River.[9]

*The author, wife of a Denver radiologist, is a talented writer and historian, and is Editorial Assistant of the Denver Medical Bulletin.

The charter meeting of the CMS was accommodated in the District Court room, above a store on the corner of 15th and Lawrence Streets. (Denver Public Library Western Collection)

Sixteen physicians and a guest clergyman climbed an outside staircase to the District Court Room above a general store on the corner of Fifteenth and Lawrence Streets for the charter meeting of the medical society on the appointed day. W. F. McClelland called the convention to order with his nomination of G. S. McMurtrie of Central City as the Temporary Chairman. The first nomination having passed unanimously, R. J. Collins of Georgetown was chosen secretary *pro tem.*

Russell Jarvis Collins was a graduate of the Berkshire Medical College. He headed West in 1866 with the intention of starting a practice at Empire, Colorado. Eight physicians ministered to the populace of 1,596 in Clear Creek County by 1870. Dr. Collins moved on to Georgetown to enhance his practice in competition with four other physicians and found his work doubled in the new location.[10]

A prayer of invocation was scheduled for the opening of the convention. The Reverend John H. Kehler, founder and rector of St. John's Church in the Wilderness, had seen his share of "firsts." After his retirement from the ministry in West Virginia at the age of sixty-five, Father Kehler traveled to Colorado in 1860. He conducted the first Episcopalian church service in the Rocky Mountains and it turned out to be far from his last.[11] He had been pastor of Denver's Episcopalians for eleven years as he offered a prayer of invocation for the assembled physicians.

A. L. Justice presented the first resolution which read: "That for purposes of organization, all regular graduates of Medicine, residents of this Territory, who acknowledge fealty to the Code of the Ethics of the American Medical Association, and who are not objected to, may become members of this Association by signing their names to this resolution at the Secretary's table."

Denver physicians signing the resolution were Richard G. Buckingham, Frederick J. Bancroft, H. O. Dodge, A. L. Justice, W. F. McClelland, E. C. Gehrung, John Elsner, J. S. Dickinson, H. K. Steele, Arnold Stedman and W. H. Williams. I. J. Pollock and R. J. Collins of Georgetown placed their names beside those of G. S. McMurtrie, W. Edmundson and S. D. Bowker of Central City.[12]

The sixteen signers of the chartering resolution had put aside the treatment of pneumonia, scarletina, tuberculosis, cholera, smallpox, measles, dysentery, peritonitis, diarrhea, bronchitis, typhoid, and mountain fever to tend to the organization of a professional society. In their bags they carried a pharmacopoeia of calomel, quinine, gentian or jalap, veratrum viride, morphine

and whiskey. Caught short of the standard drugs, they were not above using thyme, rue, sweet bugle, powdered rhubarb, feverfew, fleabrane, boneset and any other handy herbs for medication. Mustard and red poultices had come into their own as a means of driving blood infections out through the patient's skin. Mashes of roots were used for traumatic injuries. Goose or chicken fat could always be relied upon as an ointment for burns and abrasions.

The other drugs they used included cream of tartar which reduced dropsy, digitalis or santonin compounds to rout worms in the intestinal tract and muriate of ammonia as an expectorant. An ounce of brandy every hour relieved the dyspnea of phthisis and was conducive to easy patient management. Sore throats responded to a swab of tincture of iodine or a gargle of potassium chloride. Calomel stimulated secretions, opium checked diarrhea and lung hemorrhages and chloroform had replaced whiskey as an anaesthetic.

A lance, a cutting knife, forceps, lint, ligatures, sponges, bandages, plasters, catheter, stomach pump, syringe, splints, caustics, heating iron, sutures and a tourniquet were packed in their bags. Instruments were washed in warm water and soap only to remove the dust.

Diagnosis was accomplished by asking the patient questions, observing his appearance and, infrequently, examining his urine. If resorted to at all, auscultation and percussion were performed through the patient's underclothing. The ophthalmascope and laryngoscope were used only by eastern specialists, the thermometer was not in use and the vaginal speculum was known about but seldom used. Urinalysis was a feature of the postmortem examination if one was even performed.

The majority of infectious diseases were obviously caused by communicable blood conditions. Heredity was an important cause of illnesses which might be avoided by environment such as a change of climate. Extensive bleeding, cupping and setons were passing out to casual use in favor of a supportive therapy of rest, nutritious food and generous amounts of distilled spirits to help the body build enough strength to fight infection.[13]

However else they might treat disease, the sixteen physicians were determined to unite their best efforts in the name of a professional society.

Frederick J. Bancroft hoisted his three hundred pounds out of a chair to make a motion that all physicians visiting the Territory be invited to participate in the proceedings of the new organization. Frederick Jones Bancroft had been graduated from the Medical Department of the University of Buffalo in 1861. His course of postgraduate study at the University of Pennsylvania was interrupted when he joined the Seventy-sixth Pennsylvania Volunteers. He had taken command of Church Hospital in Harrisburg, seen service in the New York yellow fever epidemic and set up a hospital for Confederate prisoners before relinquishing his blue uniform to become a surgeon for Wells, Fargo and Company Stage Lines at its Denver station in 1866. The Kansas Pacific and Denver Pacific railroads had lured his medical talents away from Wells Fargo a year before the medical convention.[14]

John Elsner came to Denver to practice medicine in the same year as F. J. Bancroft. A native of Vienna, Elsner's graduation from the New York Eye and Ear Infirmary in 1863 earned him an appointment as U.S. Examining Surgeon aboard the U.S. Receiving Ship *Ohio*. After being mustered out of the military service, he took additional courses at Bellevue Hospital Medical College and received his doctorate in medicine in 1866.

In 1870 he had succeeded in convincing the Denver city fathers that the city was in dire need of a County Hospital. Dr. Elsner took charge of the construction of the wooden edifice on the west side of Cherry Creek below Blake Street.[15] He had the questionable honor of being the City Physician and was obviously well acquainted with the ins and outs of conducting politic business with his motion that the press be invited to attend the medical convention.

Housekeeping necessities of the convention being in order, the president of the Denver Medical Association, Richard Green Buckingham, was introduced for the Opening Address. Dr. Buckingham had earned his medical degree from the Berkshire Medical College in 1836. He practiced in the frontier town of Lexington, Missouri, for twenty-one years until the lure of another frontier farther West nudged him into crossing the plains to Denver in 1863.[16] Buckingham and his young friend Arnold Stedman had dreamed up the Denver Medical Association during the winter of 1870-71. Buckingham was fifty-five years old with thirty-five years of practicing medicine to his credit as he addressed the assembled physicians.

A desire to honor the profession had called them together today, he said in his opening remarks. Their professional calling was a dignified one which seldom received the honor due its

services to mankind and the community. The physician's days of happiness and nights of bliss, after all, were those of toil and sympathy for the distressed and dying. The recompense for these labors was all too frequently an inward joy at doing good.

A properly conducted Territorial medical organization would advance the profession's best interests in the community, provide social communion and establish enduring friendships among the members, he said. Of greater importance was the mutual study of medicine which would sharpen the ability to diagnose disease and apply appropriate remedies. Auxiliary to the Territorial association, county medical organizations should be established and meet frequently.

Perfect knowledge of medicine as a science cannot make successful practitioners of medicine and surgery, he warned. Close clinical observation, bedside experience, constant attention to all symptoms of disease and verifying diagnosis by postmortem examination are the material aids of the doctor. Reference to current medical literature should also aid the physician. However, *vis medicatrix naturae* must not be forgotten in the intent to perform speedy and successful cures. He stated that no properly educated physician would embrace the fashionable humbuggery of Homeopathy and administer infinitesimal doses of medicine when prompt and efficient medication is required to relieve symptoms.

It becomes us as one of the learned professions to make our medical organization as perfect as possible before Colorado seeks admission to the Union, he said. Physicians of high attainment would soon be attracted to Colorado. Medical schools were an inevitable necessity. In anticipation of these events, Buckingham suggested that the physicians gathered in the District Court Room turn their attention to organizing a Territorial Medical Association of Colorado in hopes that it might someday rest upon as firm a basis as the grand old mountains before them that lift snowcapped summits to the clouds.

With Dr. H. K. Steele as chairman, a committee of Doctors Pollock, Bowker, Edmundson and a late arrival from La Porte named T. M. Smith was appointed to draft a Constitution and By-Laws during a luncheon interlude scheduled until two o'clock.

Article I of the Constitution named the new association the Colorado Medical Society. Its objectives were to be the improvement of scientific and professional knowledge of its members, mutual recognition and fellowship, promotion of character, interests and honor of the fraternity and elevation of standards in medical education.

Graduates in medicine and surgery who adhered to the Code of Ethics of the American Medical Association and who proved themselves worthy of the confidence and fellowship of medical brethren qualified for membership. Election to membership by a vote of three-fourths of the Society followed recommendation from the Admissions Committee. Membership could be rescinded by vote of two-thirds of the members present at a report from the Ethics Committee. An admission fee of five dollars would be paid upon election to membership. Members would pay an annual contribution for the Society's expenses.

There would be Standing Committees on Executive Problems, Finance, Publication, Ethics, Medical Societies, and Credentials. Special Committees on Surgery, Practice of Medicine, Obstetrics, Medical Literature and Publications would prepare a scientific program for the membership. Reports would be needed from Committees on Topography, Climatology, Epidemics, Materia Medica of Colorado, Mineral Springs and Special Subjects for the edification of the Society membership.

Twelve members would constitute a quorum at the one annual meeting in the autumn. There would be a published volume of proceedings, a library of chemical, anatomical, and pathological specimens and a continual review of newly organized medical societies which desired association with the Colorado Medical Society.[18]

The jagged peaks west of Denver were limned with the yellow orange of a setting sun as the physicians finished their deliberations and votes on each of the seven articles of the Constitution and its six By-Laws. The election of officers remained on the agenda before the convention could recess. Two late comers brought the number of voting physicians to eighteen. In the election for presidency, Richard G. Buckingham received thirteen votes with three cast for G. S. McMurtrie and two for F. J. Bancroft.[19] I. J. Pollock would serve as Vice-President, Arnold Stedman as Secretary, E. C. Gehrung as Treasurer and H. O. Dodge as Librarian for the nascent Society.

Dr. McMurtrie gallantly relinquished his temporary possession of the Chair by escorting the newly elected president forward to conclude the afternoon's business. Irving Pollock moved that a committee be appointed to draft a fee scale and was promptly appointed to chairmanship of the

committee. The afternoon session was adjourned with the intention of reconvening at seven-thirty that evening.

Scottish born Irving John Pollock was a graduate of the University of Vermont. He applied the same practicality that had brought him to the Clear Creek bonanza to his chairmanship of the fee scale committee. His recommendation to the evening meeting was unanimously accepted. The Colorado Medical Society would adopt the fee scale of the Denver Medical Association subject to different necessities determined by the local county societies.

FEE BILL

OF THE

Denver Medical Association,

AS ADOPTED JUNE 15, 1871.

PREAMBLE.

WHEREAS, The members of the DENVER MEDICAL ASSOCIATION, feeling the importance of a perfect understanding in regard to the charges for professional services, in order to avoid litigation and other difficulties, and deeming it important and proper that there should be a mutual understanding upon the subject;

Therefore, We, the members of said Association, do solemnly agree that we will hereafter, uniformly and invariably, be governed by the following bill of charges for professional services, in all cases where there is sufficient ability to pay, viz:

OFFICE PRACTICE.

Prescription in office	$2 00 to $5 00
Physical examination	5 00 " 10 00
" " for Life Insurance Co	4 00
Vaccination at office	2 00 " 5 00
Written opinion or written advice to patient	10 00
Prescription for Gonorrhea (in advance)	5 00 " 10 00
Treatment of Gonorrhea (in advance)	25 00 " 30 00
Treatment of Syphilis (in advance)	40 00 " 100 00

GENERAL PRACTICE.

For single visit in city, in ordinary cases	$4 00
For two or more visits, same day (unless more than ordinary attention is required)	5 00
Single visit from day to day	3 00
" " at night, from ten p. m. to six a. m.	5 00

GENERAL PRACTICE.

Visits to country (each visit charged separate) within two miles	$ 5 00
Visits to country, beyond two miles, for every additional mile, by day	2 00
do do by night	3 00
Consultation, first visit	10 00
" at night	12 00
Subsequent consultation visits	5 00
Joint attendance with regular physician, after first visit	3 00
Attendance in cases of Small Pox, first visit	10 00
Each subsequent visit	5 00

MIDWIFERY

Obstetrical fee, in ordinary cases	$30 00
Operations—use of forceps, embryotomy, &c	50 00
Detention, per hour	2 00
Attendance in abortion cases	30 00
Delivering placenta alone	15 00 to $30 00
When called to assist in badly managed cases	30 00
Consultation in complicated cases of Midwifery	30 00

SURGERY.

For reducing fractures and luxations	$15 00 to 100 00
Amputation of finger or toe	10 00 " 20 00
" " arm or leg	50 00 " 100 00
Extirpation of Testicle	50 00 " 100 00
" " Tonsil	15 00 " 25 00
" " Mamma	50 00 " 100 00
" " Large complicated tumors	100 00 " 200 00
" " Other tumors, cysts, &c	5 00 " 30 00
Operation for Lithotomy	100 00 " 200 00
" " Cataract	100 00 " 200 00
" " Club-foot, single or double	100 00 " 200 00
" " Cleft palate	100 00 " 200 00
" " Removal of sequestrum	10 00 " 50 00
" " " " Jaw	100 00 " 300 00
" " Hare-lip	50 00 " 100 00
" " Strangulated Hernia	100 00 " 200 00
" " Ligature of Arteries	10 00 " 100 00
" " Fistula Lachrymalis	50 00
" " Fistula in ano	30 00 " 50 00
" " Hemorrhoids	10 00 " 50 00
" " Strabismus	50 00
" " Hydrocele (rad. cure)	10 00 " 50 00
" " " Tapping	5 00 " 10 00
" " Paracentesis abdom. or thoracis	25 00
" " Ranula	5 00 " 25 00
" " Rad. cure Varicose veins	25 00 " 50 00
" Tracheotomy	50 00 " 100 00

SURGERY.

Operation for Excision of joints	$100 00 to 300 00
" " Artificial pupil	100 00 " 200 00
" " Circumcision	25 00
" " Phymosis	25 00 " 50 00
" " Paraphymosis	10 00 " 25 00
Reducing hernia by taxis	10 00 " 25 00
Arresting Epistaxis	5 00 " 20 00
Dressing common Ulcers	3 00 " 5 00
Insertion of setons, issues, &c	5 00
Attendance at court, as experts	50 00
Making post mortem exam., by request of friends	25 00
" " " " " legal author	25 00 " 50 00
Administering Anæsthetics	10 00
Plastic operations	100 00 " 500 00

In case of consultation, the consulting surgeon will receive the same fee as the attending surgeon.

All subsequent attendance to be charged at usual rates.

For any operation or services not included in the above, fees shall be charged equal to the fee for corresponding or similar operation or services, as set forth in the above Fee Bill; or the point in question may, in cases of doubt, be referred to the Association, or to a committee, for decision, which decision shall be considered as fixing the legitimate fee for such operation or services.

ANNUAL CONTRACTS.

The practice of contracting to attend individuals or families, at a specified sum per annum, is, in the opinion of this Association, contrary to the best interests of both patient and physician, and should, therefore, be discountenanced.

This Fee Bill was also adopted by the Colorado Medical Society, September 19, 1871. (Photographed from the original pamphlet.)

Selecting delegates to attend the next meeting of the American Medical Association was the next order of business. Doctors McClelland, Williams and Holland were elected.

Fifty-year-old Eugene F. Holland had not arrived until late that afternoon and had missed signing the chartering resolution. He had been prospecting and practicing in Colorado since his arrival in Clear Creek in 1860. Eight years of discouraging adversity that did not yield enough color to pay his living expenses prompted him to forsake mining and establish himself in Idaho Springs as a full time practitioner of medicine.[20]

As the last order of business facing a restless convention, H. K. Steele read the Code of Ethics of the American Medical Association. It was unethical to advertise by puffs in newspapers or medical journals, to procure reputation by cliques or mutual agreement with individuals in the profession or to specialize in diseases other than those of the lungs, uterus, or digestive organs.[21] Dr. Steele's address concluded the first meeting of the Colorado Medical Society.

In addition to the sixteen signers of the original resolution, nine other physicians managed to be considered original members of the Society. They included William H. Thacker, D. Heimberger and Charles S. Neilson of Denver, T. M. Smith from La Porte, Eugene F. Holland from Idaho Springs, Joseph Anderson from Golden, T. R. Thombs from Pueblo, S. C. Tolles from Central City and Erasmus Garrot from Black Hawk.

The banquet of oysters and duck was served at Ford's Restaurant three doors down on Larimer Street. (Courtesy of Denver Public Library Western Collection.)

Barney Ford, Denver's touted restaurateur, had prepared one of his famous oyster and duck suppers for the convention delegates. Nine physicians having straggled in during the course of the meeting, the number of guests at Ford's Restaurant on Larimer Street was twenty-five. Generous pourings of red and white wines from Ford's cellar facilitated toasts to the American Medical Association by Dr. McClelland, appropriately followed by Dr. Buckingham's toast to the Colorado Medical Society. Dr. Bowker added levity with his toast to the absent ladies. Toasts were drunk to legitimate medicine and the press in concluding the night's revelry.[22]

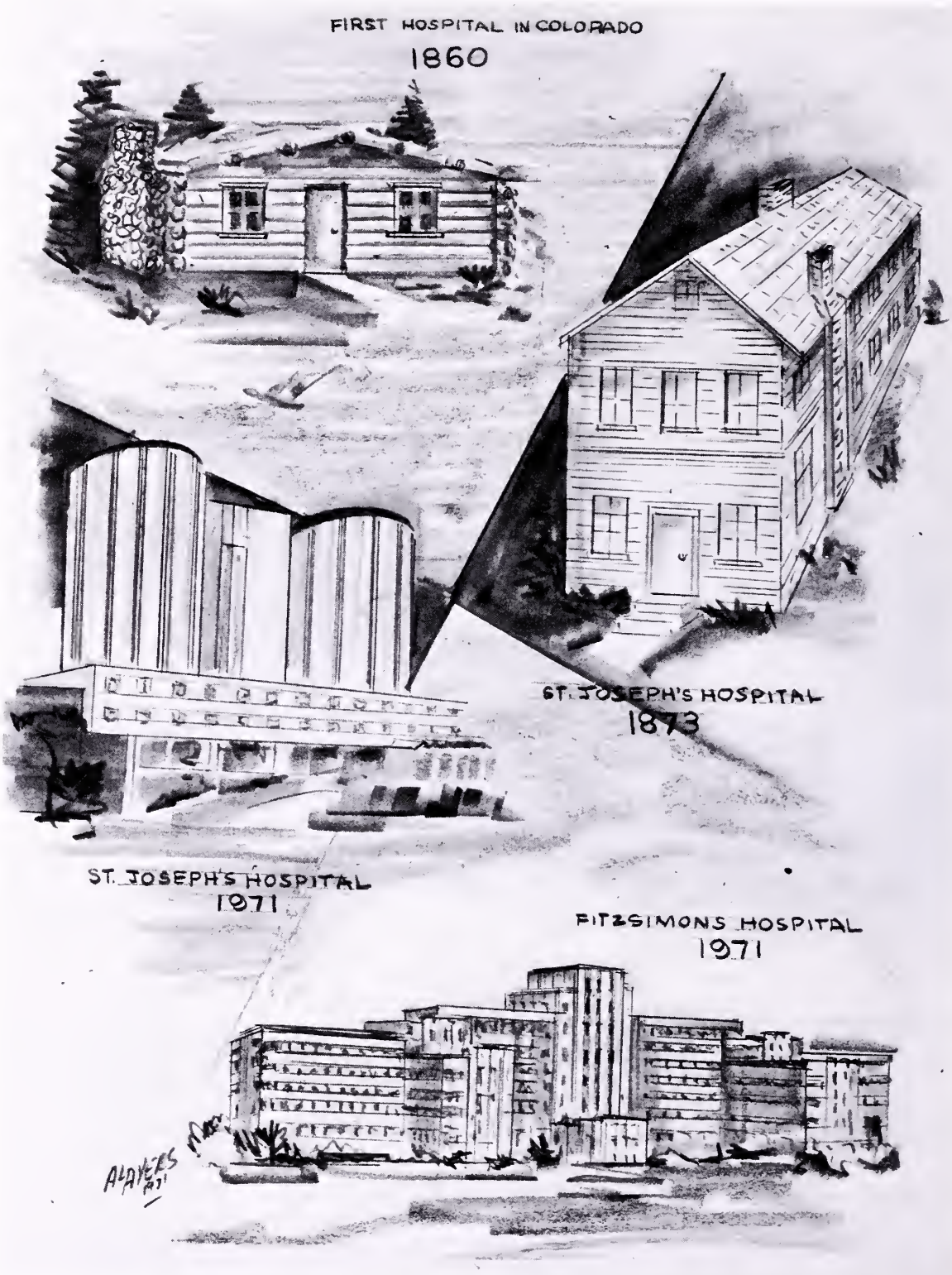
The charter members of the Colorado Medical Society bid their farewells after midnight. At dawn they would return to the business of being doctors. They would be taking their knowledge of calomel, the lancet and the poultice back to their patients with a renewed sense of professionalism. They could not imagine seeing an x-ray of the human skeleton, that a rod-shaped bacillus caused consumption or that there would be drugs to fight the spectrum of infections which they treated with cups, the pediluvium and whiskey. Whether or not the work of this day in found-

ing a professional medical association would endure was also beyond their vision. They had organized it for the social communion, the assurance of high medical standards, and the scientific education of its members.

It would be for a century of future members to judge if the basic purposes had survived the test of time.

REFERENCES

[1] S. F. Wallihan: *Colorado Gazeteer,* Denver, 1871, p. 64.
[2] Minutes of the Denver Medical Association, June 16, August 8, August 22, 1871, Denver Medical Society Library.
[3] W. B. Vickers: *History of Denver, Arapahoe County and Colorado,* Denver, 1880, p. 647.
[4] ibid. p. 522.
[5] ibid. p. 605.
[6] ibid. p. 592.
[7] Arnold Stedman: Address before the Medical Society of the City and County of Denver, Dec. 20, 1910, *Colo. Med.*, x, 1913, p. 100.
[8] *Portroit and Biographicol Record of the Stote of Colorado,* Chicago, 1899, p. 401.
[9] Minutes of the Denver Medical Association, July 25, 1871, Denver Medical Society Library.
[10] W. D. Carden: *Nineteenth Century Physicians in Cleor Creek, Colorodo, 1865-1895,* Thesis, History of Medicine Dept., Yale School of Medicine, 1968, p. 162.
[11] *Rocky Mountain News,* Feb. 2, 1879, p. 4.
[12] Proceedings of the Territorial Medical Society, Sept. 19, 1871, Denver, 1872, p. 3.
[13] Richard Dunlop: *Doctors of the American Frontier,* New York, 1865, pp. 190-199.
[14] Vickers, op. cit., p. 328.
[15] *The City of Denver, Its Resources and Their Developments,* a Souvenir of *The Denver Times,* Denver, 1891, p. 100.
[16] W. N. Byers: *Encyclopedio of Biogrophy of Colorodo,* Denver, 1901, p. 446.
[17] Proceedings of the Territorial Medical Society, September 19, 1871, Denver, 1872, pp. 4-9.
[18] ibid. pp. 10-15.
[19] *Rocky Mountain News,* Sept. 20, 1871, p. 1.
[20] Carden, op. cit., p. 153.
[21] Report of the Committee on Ethics, *Tronsoctions of the Americon Medicol Associotion,* Philadelphia, 1866, pp. 503-512.
[22] *Rocky Mountain News,* Sept. 20, 1871.


FIRST HOSPITAL IN COLORADO
1860
ST. JOSEPH'S HOSPITAL
1873
ST. JOSEPH'S HOSPITAL
1971
FITZSIMONS HOSPITAL
1971

From Pest Houses to Hospitals —
Our Changing Hospital Scene

Roy R. Anderson and
Maxine Beaton*

CLIMATICALLY Colorado has long been a mecca for the physically ill. Its rarified, and until recently unpolluted, atmosphere originally attracted many suffering from tuberculosis or congestive lung diseases. It was only logical, due to the high rate of tuberculosis, that the first Colorado "Hospitals" which sprang up in the late 1800s were primarily devoted to the care of those having contagious illnesses.

Histories we have delved into state that the first hospital in Colorado was a small log cabin situated at what is now the southwest corner of Seventh and Larimer Streets in Denver. The cabin was built in 1858 as the "residence" of Dr. Levi Russell of gold-discovery fame, but was taken over in 1860 and opened as a hospital by Dr. C. M. Steinberger. The first operation performed in this log hospital was the amputation of an arm as the result of a gunshot wound. We could find no picture of the hospital, but Dr. Nolie Mumey unearthed old sketches of both it and the first (1873) Saint Joseph's Hospital; both of these have been re-sketched by our artist on the facing page. In June of 1860 a City Hospital was established in Denver near the present intersection of 19th and Larimer Streets. At that time this was quite a distance from the center of population and was deliberately so chosen as a location to treat contagious diseases. There were 14 physicians and two dentists practicing in Denver by that time.

In 1862 Arapahoe County took over a one-and-a-half story building on Eleventh Street between Wazee and Market Streets as a County Poor House, but soon part of it was also used as a hospital. In 1867, hospital use of this building was abandoned and a two-story frame structure at Ninth and Champa Streets was procured instead. It contained six rooms and was used entirely for county hospital purposes. In 1873, the same year Saint Joseph's was opened, the block on the north side of West Sixth Avenue between Bannock and Cherokee Streets was obtained by the county and the first unit of what became, successively, Arapahoe County Hospital, Denver City and County Hospital, and now Denver General Hospital, was built at the corner of Sixth and Cherokee.

The original Saint Joseph's Hospital was opened in 1873 at Twenty-second and Blake Streets by the Sisters of Charity of Leavenworth, Kansas. It was a frame building with a one-room main floor about 20 by 40 feet containing ten cots along one wall, the second floor and attic providing living quarters for the Sisters.

The next hospital opened in Denver was Saint Luke's. With money donated by a Mrs. Tuten, Bishop Spaulding of the Episcopal Church bought the Grand View Hotel in the old town of Highlands on the west side of Federal Boulevard between West 17th and 18th Avenues, and he dedicated it as Saint Luke's Hospital. When the new hospital was started at East 19th Avenue and Pearl Street in 1891, the old one on Federal Boulevard was torn down and all debris was carted away. Underground water, probably emanating from Sloan's and Cooper's Lakes a mile or more

*Mr. Anderson is Executive Director and Mrs. Beaton is Medical Librarian, of the Presbyterian Medical Center, Denver.

The original Glockner Sanatorium in Colorado Springs, built for tuberculous invalids in 1890 with funds donated by the widow of Albert Glockner. Boswell P. Anderson, M.D., an early Colorado Springs doctor, was house physician of this first successful sanatorium which has been re-built as the modern Penrose Hospital. (Denver Library Collection)

Best known as the Union Printers' Home in Colorado Springs, but officially the Childs-Drexel Printers Home, named for its two Philadelphia benefactors. It was opened in 1892 for tuberculous and other invalid members of the International Typographical Union. (Denver Public Library Western Collection)

west of the old location, soon filled the original basement excavation and the low ground surrounding it; many still living who were children of the area in the early 1900s remember playing, wading, and swimming in what for years was known as "Hospital Lake."

In 1890 when the National Jewish Hospital opened, it became the first Colorado tuberculosis sanatorium by a few months; Glockner Sanatorium in Colorado Springs opened the same year. By 1899 National Jewish had 150 beds, and it is of interest to note that this was the first such free hospital in the world.

Typical furnishing of the "best" patient rooms in the "new" hospitals around the turn of the century, this one in Saint Joseph's of Denver in the 1890s. (Courtesy of Colorado State Historical Society)

In 1918 Fitzsimons General Hospital was opened by the U.S. Army, originally for tuberculosis patients, but a few years later expanded into a complete general hospital. It became one of the largest military hospitals in the world. Toward the end of World War II its capacity reached 5,417 beds, and while many of the separate ward buildings have since been converted to other uses, in 1971 its official bed capacity is still above 2,500, with complete medical and dental care services.

As the state became more populated, small care facilities, often referred to as "pest houses" sprang up and by 1918, there were 76 "hospitals" plus 22 designated as "sanatoria." Before the 20th Century, hospitals were primarily concerned with protecting the well public outside them rather than concentrating on *treating* the unwanted, the mentally, contagiously, or incurably ill inside of them. Today there are 88 hospitals in Colorado listed in the Annual American Hospital Association Directory. Eighty-three of these are members of the A.H.A. and 53 are officially accredited. This is significant in that it emphasizes the overall picture of progress in meeting standards for providing good hospital care to the community.

Colorado's hospital needs have risen steadily, along with our population, especially since World War II. The sudden increase in military installations throughout Colorado during that war period afforded many an opportunity to appreciate our geographical location. Thousands of service personnel who had their training here returned after the war to make our state their home. Inevitably, industrial installations also began to move in. With more people and more business came more health needs.

The first of six tent colonies built by the Modern Woodmen of America, surrounding a dining hall, photographed in 1909. This became the widely-admired Woodmen Sanatorium. (Denver Public Library Western Collection)

The changing scene has not been without its problems as well as its benefits. The hospital's role is no longer confined to treating an acute illness and sending a patient home. The concept of total patient care has become a responsibility for total community health needs. This has necessitated ever broadening horizons of what is required of the hospital in the way of facilities, educational programs, qualified personnel, and effective utilization of beds along with ever increasing pressure to keep costs down.

In the early days the patient-physician-hospital relationship was a unilateral one. Now, with the advent of industry and government assuming much of the financial burden for health care,

The Weld County General Hospital at Greeley typifies fine modern construction. (Photo by Barber of Greeley)

hospitals are constantly scrutinized on their effectiveness in administration as well as professional services. Whereas the public used to consider it a privilege to receive good health care, it has now become a right!

The picture of hospital administration is also changing from what was an autonomous arrangement to increasing involvement with all health care facilities. In addition to the expansion of the hospital concept of caring for the individual while hospitalized and then relinquishing responsibility for continuity of care, the entrance of government and industry into the health insurance picture has perforce given "third parties" the right to insist on careful scrutiny of hospital costs and administration, thus hospitals, too, are caught in the inflation predicament of higher costs in salaries and equipment, plus having to meet the demands for expansion and extension of health services. It is now evident that the spirit of competition among hospitals in Colorado must be replaced by cohesive effort toward cooperation, wherein careful evaluation of specialized services is done to avoid undue duplication. Geographical surveys must be undertaken to determine needs for expansion of existing facilities or institution of satellite hospitals to serve the ever growing suburban population. Shared utilization of computerized services must be investigated for reduction of costs in business operations. As medical science continues to progress, as a better informed public continues to demand improved health care, and as government and industry increasingly underwrite health insurance, hospitals will continue to face increasing challenges to meet their role in the health care complex as efficiently and economically as possible.

We can be proud of our record for care of the hospitalized patient over the past century in that we have made steady progress in upgrading our facilities, supporting educational programs for the health professions, and widening our involvement with allied agencies. The changes which have taken place have resulted from advances in medical education and scientific medicine; however, neither could have taken place without the hospital.

We realize that the hospital of the future is already forecasting a radically different picture than what we have today. If Colorado is to maintain its reputation as a national medical center, the obligation to keep alert and avoid rigidity of custom must constantly be in the forefront of hospital administration lest we relatively be where we literally were in the 1800s — "in the 'horse and buggy' era."

REFERENCES

American Hospital Association: *The Changing Hospital and the A.H.A.*, Chicago: American Hospital Association, 1965.

Hafen, Leroy R.: *Colorado and Its People*, New York: Lewis (c 1948).

Stone, Wilbur Fisk, Ed.: *History of Colorado*, Chicago: Clarke, 1918, Vol. 1, p. 766.

Articles

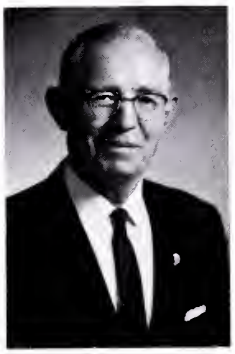
Brown, Ray E.: *The U. S. Hospitals; an Industry in Transition*, Pharmaceutical Marketing and Media 3: 21-23 (February) 1968.

Hospitals: *Focus of the Search for Better Health Care*, Hospitals 42: 50-55 (June 16) 1968.

Sibery, D. E.: *The Changing Role of Hospitals*, Michigan Hospitals 4: 4-11 (September) 1968.

A Century of Colorado's Industrial Medicine

Lewis C. Benesh, MD*



AN EDITORIAL of the Journal of the American Medical Association defines industrial medicine or occupational medicine as that branch of medicine that deals with the relationship of man to his occupation for the purpose of prevention of disease and injury and the promotion of optimal health productivity and social adjustment.[1] Bernardino Ramazzini (1633-1744), the "Patron Saint" of industrial medicine, in addition to his classical description of occupational diseases of his day, left two statements that bear repeating. The first of these was his exhortation to all physicians to ask of their patients not only the usual questions regarding their health but also to inquire without fail "of what trade are you?" The other command of the old master was that physicians should learn the nature of the occupational diseases in shops, mills, mines or wherever men toil. Osler believed that clinical medicine was best learned in the wards of hospitals, while Ramazzini taught that occupational diseases most effectively are studied in the work environment.[2]

The practice of industrial medicine is probably as old as the practice of medicine in any field. In the early days of medicine in Colorado, every physician undoubtedly practiced industrial medicine to some extent. Most practicing physicians today will do some industrial medicine without thinking of it as such. Taking care of an injured employee or treating an illness or mental problem associated with the patient's occupation is industrial or occupational medicine even though the physician may not think of it as such.

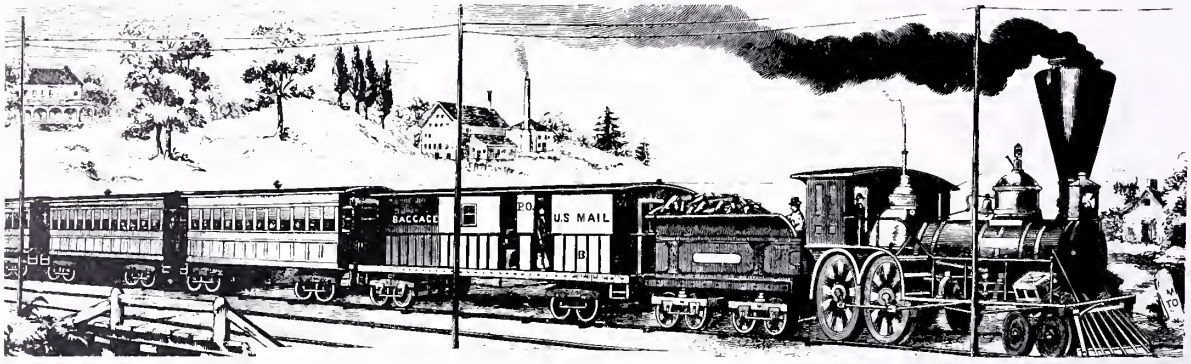
Many of the early Colorado physicians were closely associated with some industries and took a great interest in the problems of health and safety of the employees in those industries. They had a greater opportunity to be closely associated with, and interested in, the working environment and problems related to that industry. They became more acutely aware of the needs of the worker and his problems of health and safety. There was no accumulated knowledge relative to the types of disease or injury which might be encountered in those industries. There were no organized groups or societies to study these problems and record and pass along this information. Each pioneer physician working in the different industries had to study, learn, and treat these industrial problems individually as they were encountered. It will be of interest to look at some of these early physicians interested in industrial medicine and at the growth of interest in the Territory and State and among the physicians in this field of medicine through the years.

Records and biographies of all the early physicians interested in industrial medicine are not available. Even if they were, time and space would not permit reference to all. More records were available as the years passed and greater interest was taken in occupational medicine with the growth of industry in Colorado. The State of Colorado and the Colorado Medical Society and other groups eventually became interested in the health and safety of the worker. The following are a few of the earliest pioneer physicians associated with the early Colorado industries. Only brief biographies are given here.

Doctor Jesse Hawes was one of the early pioneer physicians who lived in Greeley, Colorado. He was graduated from the University of Michigan in 1868 and Long Island Hospital in 1871.

*The author was for many years Regional Medical Director for United Air Lines and Chairman of the Colorado Medical Society's Industrial Health Committee; now officially retired, he still gives part-time service to the Denver Public Schools health department.

He was the first surgeon for the Union Pacific Railroad in Colorado. He was President of the Colorado State Medical Society in 1884. He died of a heart condition in 1901 at the age of 58 years. He is the grandfather of Dr. John Amesse of Denver.[3]



The first railroad trains to serve Colorado reached Denver in 1870. This old drawing depicts one of them, perhaps a few years later. (From "Man, Medicine and Work," U.S. Dept. of HEW)

Doctor Lewis Lemen was also a surgeon for the Union Pacific Railroad. He was born in Belleville, Illinois on April 1, 1849. He settled in Georgetown, Colorado in 1872 and moved to Denver in 1884. He was surgeon for the Omaha and Grant Smelting Works and in 1887 also to the Globe Smelting and Refining Company. He was President of the Colorado State Medical Society in 1897-1898.[4]

Thomas D. Baird, M.D. was born in Shelby County, Kentucky in 1850. He was graduated from Rush Medical College in 1877. He came to Colorado in August 1880, settling in Pueblo. He was President of the State Board of Medical Examiners in 1886 at which time he lived and practiced in Walsenburg, Colorado. He was surgeon for the Colorado Fuel and Iron Company at the Pecton mines, for the Union Pacific and the Denver and Gulf Railroad Companies, and the Northern Coal Company at Toltec.[4]

Frank N. Cochems, M.D. was born in Ahnapee, Wisconsin January 24, 1868. He was graduated from Northwestern University of Chicago in 1891. He came to Colorado on April 1, 1893, and settled in Salida. He was a very able surgeon and was surgeon for the Denver and Rio Grande Railroad at Salida where the only hospital of that company was located. Cases were sent to him from all parts of the state.[4]

John W. O'Conners, M.D. took his degree in 1879 at Rush Medical College and immediately came west to Colorado. He was chief surgeon to the Denver and Rio Grande Railway for a long period of time. He had an extensive practice at Maysville District. Within a few years, he was appointed a member of the Colorado State Board of Medical Examiners.[5]

Frederick J. Bancroft, M.D. was born in Enfield, Connecticut May 25, 1834. In February 1861 he was graduated from the Medical Department of the University of Buffalo, New York. He served for a time in the Seventy-Sixth Pennsylvania Infantry. In April 1866 he came to Denver and built a large practice. He was surgeon for the Wells Fargo stage lines and later was surgeon for the Denver Pacific, Kansas Pacific and Rio Grande Railroads. He was President of the Denver Medical Society in 1876. He was the first President of the Colorado State Board of Health when it was established in 1876.[4]

Richard W. Corwin, M.D. was born in Binghamton, New York May 24, 1852. He attended schools at Cornell University and the State University of Michigan where he taught from 1874 to 1878. He then went to St. Luke's Hospital in Chicago for two terms. In the spring of 1881 he came to Pueblo as chief surgeon for the Colorado Fuel and Iron Company. He was also a surgeon for the Denver and Rio Grande and the Union Pacific Railroads and the Colorado Smelter Company.[4] In the publication, "Occupational Health in America," page 218, it is stated that Dr. R. W. Corwin, Pueblo, Colorado was one of the delegates to the Fifth International Medical Congress for Industrial Accidents and Occupational Diseases, held in Budapest in September 1928.

Edgar M. Marbourg, M.D. was born in Philadelphia December 10, 1864. He was graduated from the Jefferson Medical College in 1888. His specialty was eye, ear, nose and throat. He came

This early-day mansion in Salida, Colorado, was converted in 1877 into the Denver & Rio Grande Railroad hospital, the first industrial hospital in the state. (Courtesy Colorado State Historical Society.)

to Pueblo in 1889. He was oculist and aurist for the Colorado and Southern Railroad, the Denver and Rio Grande Railroad, Colorado State Insane Asylum, Colorado Fuel and Iron Company, Colorado Smelter and the Colorado State Penitentiary at Canon City.[4]

L. T. Durbin, M.D. was born in Wooster, Wayne County, Ohio on May 5, 1858. He entered the medical department of the University of Denver in 1882 and obtained the degree of M.D. in 1884. He lived and practiced in Central City for a time, later moving to Villagrove in the San Luis Valley where for four years he practiced, was county coroner and was local surgeon for the Denver and Rio Grande Railroad and Colorado Coal and Iron Company. He returned to Denver in November 1891 where he became surgeon to the Denver Tramway Company.[4]

Charles F. Gardiner, M.D. was born in New York City October 12, 1857. He entered Bellevue Hospital Medical College from which he was graduated in 1882. In 1884 he came west and

The smelting of precious metal ores was a major industry in Colorado from the beginning of the state's mining booms and it created many industrial health problems. Pictured, about 1890, is one of the largest smelters, at Salida. (Courtesy Colorado State Historical Society.)

located at Crested Butte, Gunnison County, Colorado. He was appointed surgeon for the Colorado Coal and Iron Company. After two years, he moved to Meeker, Colorado, and later to Colorado Springs. He was also surgeon for the Union Pacific and Denver and Gulf Railroads.[4]

Women physicians also played a part in the early medical history of Colorado. Susan Anderson, M.D. was one of these pioneers. She was born in Monroeville, Indiana January 29, 1870. She was graduated from the University of Michigan Medical College in 1897 and began practice at Cripple Creek, Colorado the same year. She moved to Fraser, Colorado in 1903 and continued her practice there. She worked for some of the lumber camps taking care of the many needs of the workers in this occupation.[6]

Many other physicians were interested in industrial medicine and the health of the worker to a greater or lesser degree. As the years passed, many more physicians came to Colorado and many more were associated with industry as it increased in the State. The first indication of interest by the State of Colorado in the health problems of the State and of the worker was the establishment of a Territorial Board of Health. The following is from the "First Annual Report" of the Secretary of the State Board of Health of the State of Colorado for the fiscal year ending September 3, 1876.

> An Act to Establish a Territorial Board of Health. Be it enacted by the Council and House of Representatives of Colorado Territory:
>
> **Section I.** That a Board is hereby established which shall be known under the name and style of the Territorial Board of Health. It shall consist of nine members. They shall make sanitary investigation and inquires respecting the cause of disease, and especially of epidemics, the causes of mortality and the effects of localities, employments, conditions, ingesta, habits and circumstances on the health of the people.
>
> Approved February 10, 1876

Herein is the first indication of any organized concern by the State of the effect of employment on the health of the people.

In accordance with the provisions of the law providing for the establishment of a Territorial Board of Health, the Governor appointed the following named persons as members and officers of the Board.

F. J. Bancroft, M.D. – Denver – President
A. V. Small, M.D. – Trinidad
T. G. Horn, M.D. – Colorado Springs
W. Edmondson, M.D. – Central
T. M. Smith, M.D. – Fort Collins
R. J. Collins, M.D. – Georgetown
T. N. Metcalf, M.D. – Del Norte
W. H. Williams, M.D. – Denver
H. A. Lemen, M.D. – Denver, Secretary

The first meeting of the Board was held in Denver on the 12th of April, 1876, at the office of the Secretary of the Board. All members were present except T. M. Smith, M.D. and T. N. Metcalf, M.D. Committees were appointed to cover the following subjects:

1. Epidemics, Endemics and Contagious Diseases – R. J. Collins, M.D., Chairman.
2. The Mineral Springs of Colorado – T. G. Horn, M.D., Chairman.
3. Climate as Related to Classes of Diseases – H. A. Lemen, M.D., Chairman.
4. Ozone, Electricity and Electrical Storms: Their Influence on Health – T. N. Metcalf, M.D., Chairman.
5. Altitude: Its Influence on Health – W. Edmondson, M.D., Chairman.
6. Illuminating Gases and Fluids – T. M. Smith, M.D., Chairman.
7. Food Drinks and Water Supply – A. V. Small, M.D., Chairman.
8. Influence of Climate on the Young – W. H. Williams, M.D., Chairman.
9. Sewer and Sewage – F. J. Bancroft, M.D., Chairman.

Lengthy reports on these and other subjects were given at the meetings that followed as the years passed. Some changes were made in personnel from year to year and different committees formed by the Board. The work of these committees undoubtedly had some influence on industry and its attitudes and on the working conditions of the worker in industry. However, much was left to be desired to improve the safety of working conditions and the health care of the employee. Apparently no great direct interest of any organized group, medical or otherwise, was shown in the problems of the worker in industry for some time.

It was not until 1915 that the Legislature of the State of Colorado passed two acts known as Chapters 179 and 180 respectively of the Session Laws of the State of Colorado of 1915 and commonly referred to as "The Workmen's Compensation Act," and those two acts, together with the

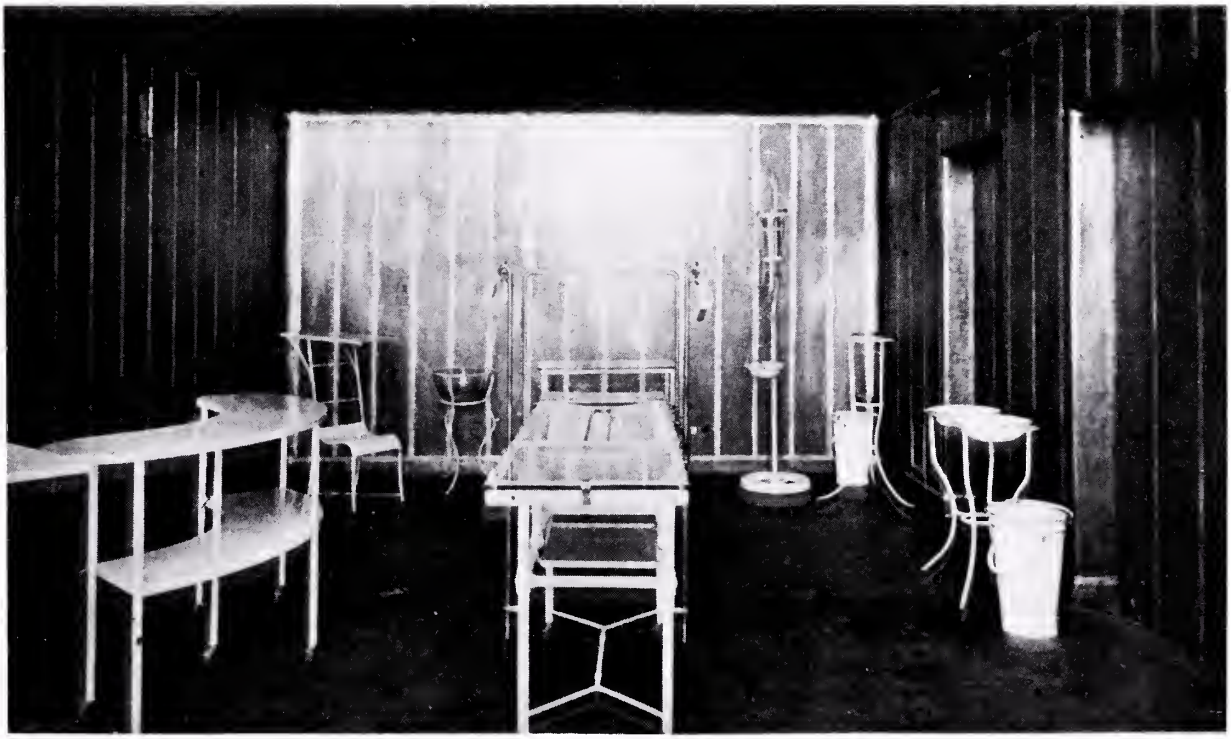
amendments contained in Chapter 155 of the Session Laws of 1917, constitute the law applicable to various duties imposed and powers exercised by this Commission.

Under the authority of these two acts, there was also created an insurance department to be administered directly by the Commission and known as the "State Compensation Insurance Fund" which insures employers against liability imposed by the Workmen's Compensation Act. The first Commission report was made on December 1, 1917 by the Commission which took office in March 1917. No report was filed by the Commission between 1915 and December 1917: This act which became effective August 1, 1915, with the amendments of the year 1917, became the working plan which governed the relation between employers and employees in respect to accidental injury or death suffered by employees while performing services arising out of, and in the course of, their employment. It was the exercise of the police powers of the State and was passed in furtherance of a broad humane policy to provide medical, surgical and hospital treatment, and to grant compensation to injured employees and to provide for their dependents in case of death.

From the time the Workmen's Compensation Act was passed and put into effect on August 1, 1915, to the time of the first commission report in December 1917, the following accidents and claims were reported:

Total number of accidents since organization	29,450
Total number of claims since organization	5,187
Percentage of claims	17.27%
Total number of death claims since organization	504

As the years passed, more was added to the "Workmen's Compensation Act" and certain illnesses and diseases were made compensable. With the implementation of this act, the physicians became more acutely aware of the problems of the worker in industry. The physicians would have to make reports and substantiate or deny the claims of the worker from a medical stand-



The famous lead-lined operating room of Minnequa Hospital, Pueblo, designed by Dr. R. W. Corwin for that Colorado Fuel & Iron Company industrial hospital and built in 1902. Floor, ceiling, doors and three walls were completely lined and hermetically sealed with sheet lead, the north wall being heavy plate glass also hermetically sealed, so the room could be sterilized with live steam before each operation and then cooled (not always very effectively!) by pumping in sterilized air. (Denver Public Library Western Collection)

point. Also, since the medical fees in these compensation cases were to be paid for by the Workmen's Compensation Fund, the physicians had to become more closely associated with the Workmen's Compensation Act. With the association between physicians and the Workmen's Compensation Act and Fund, interest apparently grew in the Colorado Medical Society to improve the relationship. A committee on Industrial Commission Fees was first mentioned in committee proceedings of the Colorado State Medical Society at the 1928 annual meeting. A committee on Industrial Commission Fees was apparently organized and the first report of the Committee was given at the annual session of the Society in 1932 with William H. Halley, M.D. as chairman.

The following report was given: "This committee, organized two years ago, succeeded just before the last annual session in obtaining a revision of the Workmen's Compensation Fee schedule. It is recommended that the present committee as such be discontinued and that the President appoint such other committees as he sees fit to consider the features of Workmen's Compensation Affairs which are not purely those of the fee schedule." As the result of the above report, in 1932 the Workmen's Compensation Affairs Committee was appointed with A. S. Cecchini, M.D., chairman. There were no reports of meetings of the Board of Trustees available between 1932 and 1938. Apparently no regular annual meetings were held during that time. No committee reports were available.

In the report of the Board of Trustees at the State Medical Society meeting at Estes Park, Colorado, September 7-10, 1938, it was resolved by the House of Delegates of the Colorado State Medical Society that certain committees be abolished and the following be established in their stead:

1. Committee on Cancer Control
2. Committee on Tuberculosis Control
3. Committee on Venereal Disease Control
4. Committee on Pneumonia Control
5. Committee on Maternal and Child Health
6. Committee on Crippled Children Program
7. Committee on Industrial Health

The chairmen of the above named committees were to constitute a special committee to be known as the Committee on Public Health of the Society:

The Industrial Health Committee was to consist of four members serving two year overlapping terms. Members of this first Industrial Health Committee were:

1. J. J. Mahoney, M.D., Colorado Springs, 1940, Chairman
2. S. B. Potter, M.D., Pueblo, 1940
3. H. W. Wilcox, M.D., Denver, 1939
4. C. R. Fuller, M.D., Salida, 1939

The report of this committee on Industrial Health was given at the annual meeting of the Colorado State Medical Society September 8, 1939. It was a rather lengthy report as follows:

To the House of Delegates:

I. Of recent years the question of health of industrial workers in the United States has become one of major importance. As evidence of this interest we call your attention to:
   1. The existence of the First Annual Congress of Industrial Health fostered by the American Medical Association held in Chicago January 9 and 10, 1939.
   2. A survey by the State Board of Health in Colorado for the evaluation of the industrial hygiene problem. This was printed in the year 1939.
   3. The selection of a committee of the Colorado State Medical Society for the study and evaluation of the industrial hygiene problems in Colorado.

II. In attempting a study and evaluation of the industrial hygiene problems in Colorado a number of difficulties are manifest.
   1. Lack of adequate general knowledge concerning the problem as a whole.
   2. Lack of any records which might have given a great deal of information.
   3. Lack of proper physical examination of men already employed which might indicate pathology due to certain contacts in industry.
   4. Lack of cooperation in various plants in providing information regarding health hazards.

III. In any industrial health problem it is obvious that a comprehensive program directed toward prevention is paramount. In our opinion, the following suggestions may be useful.
   1. Proper examination of employees. Every six months suggested along with an educational program.
   2. Proper examination of new employees. Comprehensive examination with proper laboratory and x-ray work.
   3. Proper recording of all data found in these examinations to be used in general evaluation of the entire problem.

IV. In as much as the eradication of syphilis has become a national undertaking it may be well to call attention to the question of this disease as it relates to the industrial health problem in Colorado.

V. Occupational Diseases. More knowledge and education is necessary to better understand these problems.

VI. Medical care and hygiene for smaller plants.

1. Seventy-eight percent of workers in Colorado work in plants of less than 500 individuals.
2. Fusion of services in smaller plants is recommended.

VII. Increased interest in the State Board of Health.

1. Dr. Roy L. Cleere, Secretary and Executive Officer of the Colorado State Board of Health, is complimented on what records are available.
2. It is suggested that the Board emphasize the necessity of complete physical examination and education of the public to realize that serological examination should be compulsory.

From 1940 to 1955 the following physicians were chairmen of the Industrial Health Committee at various times:

Kenneth C. Sawyer, M.D., Denver
T. E. Williams, M.D., Denver
Louis V. Sams, M.D., Denver
R. F. Bell, M.D., Louviers
James S. Cullyford, M.D., Denver
R. G. Howlett, M.D., Golden

Between 1952 and 1953 the name of the committee was changed from Industrial Health Committee to the Committee on Occupational Health. No reports of any meetings of this committee were available again until 1955-56 when Joseph Glaser was Chairman. During this year a successful one day Industrial Health Symposium was held at Schwayder Brothers, Inc. On March 29, 1957, a second symposium was held with Gates Rubber Company as host and a third Industrial Health Seminar was held May 9, 1958, in Pueblo with the Colorado Fuel and Iron Company as host. Lewis C. Benesh, M.D. was chairman of the Occupational Health Committee from 1958 to 1961. The fourth annual symposium was held May 8, 1959, with United Air Lines as host. Over forty physicians attended at this time.

During the year 1958-59, the Occupational Health Committee discussed the possibility of organizing a Rocky Mountain Industrial Health group to become a component Society of the Industrial Medical Association. The committee as such had no authority to act but the chairman as District Counselor of District 23A of the Industrial Medical Association was to proceed with such an organization to be formed if possible.

The next Industrial Health Seminar was held on May 18, 1960, with the Martin Missile Plant as host. Sixty-five physicians attended this meeting. On June 30, 1960, the Committee met with B. Dixon Holland, M.D., Secretary of the Council on Occupational Health of the American Medical Association. Plans were discussed and formulated for a program for the Twenty-First Congress on Industrial Health which is held each year by the American Medical Association. Plans were tentatively made for this meeting to be held in Denver in October 1961. In the spring of 1961 final arrangements were completed for the Twenty-First Congress on Industrial Health of the American Medical Association to be held in Denver at the time of the annual session of the Colorado State Medical Society on October 2 and 3, 1961.

In 1961-1962, Dr. James Stapleton was chairman of the Occupational Health Committee. An Industrial Health Seminar was held in the spring with the Rocky Mountain Arsenal as host. It was suggested that this committee per se be abolished and perhaps be combined with the Rehabilitation Committee under the heading of the Industrial Health and Rehabilitation Committee. This new committee was formed and in 1962-1963 was co-chaired by James Stapleton, M.D. and John Young, M.D. Their principal activity was to co-sponsor the program of the Rocky Mountain Academy of Industrial Medicine. A spring seminar was held May 24, 1963 at the Craig Rehabilitation Hospital. Apparently no reports or meetings were held from 1963 to 1966 because of lack of interest.

In 1966-1967 with Robert F. Bell, M.D. as chairman, the committee with the Rocky Mountain Academy of Industrial Medicine planned a two day program to be held in Aspen in April. In 1967 the committee again joined the Rocky Mountain Academy in sponsoring a two day seminar. The chairman of the committee, Robert F. Bell, M.D., upon approval by the House of Delegates of the Colorado State Medical Society, attended the American Medical Association Council on Industrial Health. In 1967 - 1968 the Committee on Environmental Health and Rehabilitation with Robert F. Bell, M.D. as chairman prepared a schedule of suggested mini-

mums of pollutants. Other work was centered around plans of the National Air Pollution Conference to be held in July sponsored by the American Medical Association.

Medical practice in industry, as elsewhere, is dedicated to the best possible care of the patient. The only differences are environment and the limiting conditions inherent in all industry, especially in smaller companies. Our success in industrial medicine hinges on understanding these differences. Increasing industrialization, with its resulting profound changes in the structure of our society, created new and important needs for health services. These needs are more quickly recognized in the larger establishments but are just as important in the small industries.

The American Association of Industrial Physicians and Surgeons was organized in Illinois in 1915. The first annual meeting was held June 12, 1916 in Detroit with approximately 125 members in attendance. This small group of doctors recognized that no existing medical association served the interest of those physicians who were concerned with the health and well-being of the working population. Later the name of this association was changed to the Industrial Medical Association and presently has a membership of about 3,800 members.

The purposes and objectives of the Industrial Medical Association are:

> The object of this Association shall be to foster the study of the problems peculiar to the practice of Industrial Medicine and surgery, and to unite into one organization members of the medical profession whose interest lies in that field. It shall encourage the development of methods adopted to the conservation and improvement of health among workers and promote a more general understanding of the purposes and results of the medical care of these workers.[7]

The growth and influence of this Industrial Medical Association influenced many Colorado physicians in their attitudes and practices in industry. A number of Colorado and other western states' physicians became members of this organization. As more and more physicians became interested in industrial medicine and the problems of health in industry in Colorado, more attention was turned to understanding and handling of these problems. This became more urgent with the marked increase of industry in Colorado. Many other groups became interested in these problems, also, other than the physicians and medical societies.

The first Rocky Mountain Conference on Industrial Health was held at the Denver Chamber of Commerce building on October 31, November 1 and 2, 1949. This was sponsored by the (1) Colorado Manufacturer's Association, (2) Denver Chamber of Commerce, (3) Colorado Chamber of Commerce, (4) Colorado State Department of Health, and (5) Division of Industrial Medicine of the University of Colorado School of Medicine.

In 1958-1959 the Rocky Mountain Academy of Industrial Medicine was organized in cooperation with the Occupational Health Committee of the Colorado State Medical Society and the help of the Colorado Medical Society itself. The organizational meeting was held Wednesday evening, September 9, 1959 at 7:30 p.m. in the Onyx Room of the Brown Palace Hotel. A group of 30 physicians attended this meeting and interim officers were elected.

A meeting date to complete the organization was set for February 17, 1960 at 7:30 p.m. This meeting was held as scheduled in the Centennial Room of the Shirley Savoy Hotel. The reports of the interim officers were given. A Constitution and By-Laws were unanimously adopted. The Nominating Committee and the following officers were elected for the first year:

L. C. Benesh, M.D., President
J. Fredric Prinzing, M.D., 1st Vice-President
W. N. Baker, M. D., 2nd Vice-President
William Boehm, M.D., Two-year term on Board of Directors
R. B. Richardson, M.D., One-year term on Board of Directors
Irving Ohr, M.D., continued as Secretary-Treasurer combined

The organization unanimously adopted a motion to become incorporated as the Rocky Mountain Academy of Industrial Medicine. It was voted to hold a scientific meeting in September 1960. Before the close of the meeting, Dr. Roy Cleere gave an address on "Let Us Solve Our Industrial Health Problems." After complying with all the requirements, the Rocky Mountain Academy of Industrial Medicine became a full component Society of the Industrial Medicine Association in October 1960 by action of its Board of Directors.

After becoming a full component society of the Industrial Medical Association, the Rocky Mountain Academy of Industrial Medicine became very active and grew in numbers. The Rocky Mountain Academy of Industrial Medicine includes the states of Colorado, Montana, New

Mexico, western South Dakota, and Wyoming. There are presently seventy members of the Rocky Mountain Academy of Industrial Medicine and fifty of these are Colorado physicians. Members of this group belong to the Industrial Medical Association and many are active in that organization on an international level. Scientific programs have been sponsored each year, many in cooperation with the Occupational and Rehabilitation Committee of the Colorado State Medical Society. Interest and attendance at these meetings has increased markedly over the years.

The Twenty-First Annual Congress on Occupational Health, sponsored by the American Medical Association, was held in Denver on October 2 and 3, 1961. This was at the time of the Colorado State Medical Society's annual fall meeting.

Summary

It can be said that in the early years of medicine in Colorado there was no organized interest in the health and safety of the employee in industry. There was no accumulation of knowledge or statistics relative to the hazards to be found in industry. Each physician working in the various industries had to apply his knowledge and skill as best he could to each new hazard or illness related to that industry. Interest in these problems in industry increased gradually over the years and were stimulated by certain groups and laws.

First, the State Board of Health became more and more aware of the health hazards in industry. As knowledge was accumulated over the years, the State of Colorado enacted the Workmen's Compensation Act to compensate the worker in industry for accidental injury and loss of wages or earning power. Dependents were compensated for loss of life of the worker in industry. As time passed, certain illnesses were included in the Workmen's Compensation Act. This all stimulated the interest of physicians in the health of the worker.

The Industrial Medical Association had an influence on many Colorado physicians who became associated with this organization and later organized the Rocky Mountain Academy of Industrial Medicine, a component of the Industrial Medical Society.

In the years 1920 to 1930 the Colorado State Medical Society organized its first committees pertaining to the Workmen's Compensation Fees and Workmen's Compensation Affairs. This committee later became the Industrial Health Committee and later the Industrial Health and Rehabilitation Committee.

The first Rocky Mountain Conference in Industrial Health was held at the Denver Chamber of Commerce building October 31, November 1 and 2, 1949. The Twenty-First Congress on Occupational Health, sponsored each year by the American Medical Association, was held in Denver on October 2 and 3, 1961 in cooperation with the Colorado State Medical Society and the Industrial Health Committee. The Rocky Mountain Academy of Industrial Medicine was organized in 1959 and became a component society of the Industrial Medicine Association in October 1960. It has grown tremendously in strength and influence in matters pertaining to industrial health in all the Rocky Mountain states. The Colorado Medical Society and its Occupational Health and Rehabilitation Committee has stimulated the growth of the Rocky Mountain Academy of Industrial Medicine.

I believe that, as time has passed, we are all more and more aware of the fact that occupational health is not only a problem for the physician but for all of society.

REFERENCES

[1] Editorial, Education of Physicians for Industry, Journal of the American Medical Association, 159, 1742-1743, 1955.

[2] *Occupational Diseases and Industrial Medicine*, Johnstone and Miller, W. B. Saunders Company, 1960.

[3] *Encyclopedia of Biography of Colorado*, Volume I, and from Colorado Medical Society Archives.

[4] Portrait and Biographical Records of the State of Colorado, Denver Public Library.

[5] *Tales of Pioneer Practice*, Denver Public Library.

[6] Volume I, *Outlines of Histories of Women Physicians in Colorado*, Mary Reed Stratton, Denver Medical Society Library, and *Rails That Climb*, Edward T. Ballinger, Denver Public Library.

[7] Article II, By-Laws of the Industrial Medical Association as Revised and Adopted at the Annual Meeting, April 12, 1961.

SCHOOL
NURSE

Public School Health in Colorado

From Territorial Days to 1971

Marcia F. Curry, M.D.*

THE ROLE of the physician differs from that of the educator only in his emphasis. Whereas the educator must face the problems of bringing the maximum amount of knowledge in all spheres to his pupils, the physician, though concerned with this multifaceted problem, usually concerns himself more directly with matters of education in relation to health. What doctors feel is important in this area of education directly influences the population as a whole and hence makes his words and actions vitally important. The consequences of poor or less than attentive choices for public dissemination, or of contradictory choices, motivated by political or self-interest factors, may lead the public to confusion and ultimately to lack of conviction in, and lack of support of, highly necessary health measures.

So begins the history of public school health in Colorado. Though individual physicians have worked toward excellence in health education since territorial times, these individuals stand out in their struggle to mold public opinion toward optimal health standards. Rarely over the state have there been groups of physicians concerned exclusively with school health, either pupil or adult employee needs. Even more rarely have physicians been employed by boards of education. A nationally respected educator, Delbert Oberteuffer, Ph.D., in discussing the problems physicians face in an educational environment has said:

> The unique position of a physician in the educational program has not been easy to establish. Many years of experience and much careful thought have gone into the evolution of his present status. The idea of having a physician serve the school was not one readily acceptable to medical groups, and educators were prone to misunderstand his function and use him in a short-sighted way.[1]

Nationally there have been and are today three major patterns for establishing school health programs:

> Health services established under local boards of education, with personnel employed by individual school districts;
> personnel employed by local health departments or local counties to supply school districts with health services;
> joint authority shared by local boards of health and boards of education to supply needed health services.

Colorado historically has utilized all of these methods at one time or another in providing school health services within the state. Yet the development of interest in school health problems was indeed early in Colorado, for in 1876 the Superintendent of Public Schools of Denver, Aaron Gove, stressed the need for close alliance between physicians and educators, with the physician's advice essential to the smooth progress of education, and his presence as one of the members of local school boards imperative.[2] It is fascinating to note that these comments, made by an educator, were considered during the year that Colorado was emerging as a state, under the leadership of Governor Routt, and finally separating itself forever from Kansas Territory. Denver was then a town of less than 10,000 population, without paved streets, sewers nor general water supply. Governor Routt that year appointed the first State Board of Health, a direct successor to the Territorial Board of Health, approved February 10, 1876.

"Growing Pains"

The earliest school health concerns of physicians were reflected as members of school boards and as advisory members and chairmen of committees of the State Board of Health. Primarily these physicians directed their activities toward regulating against communicable diseases in

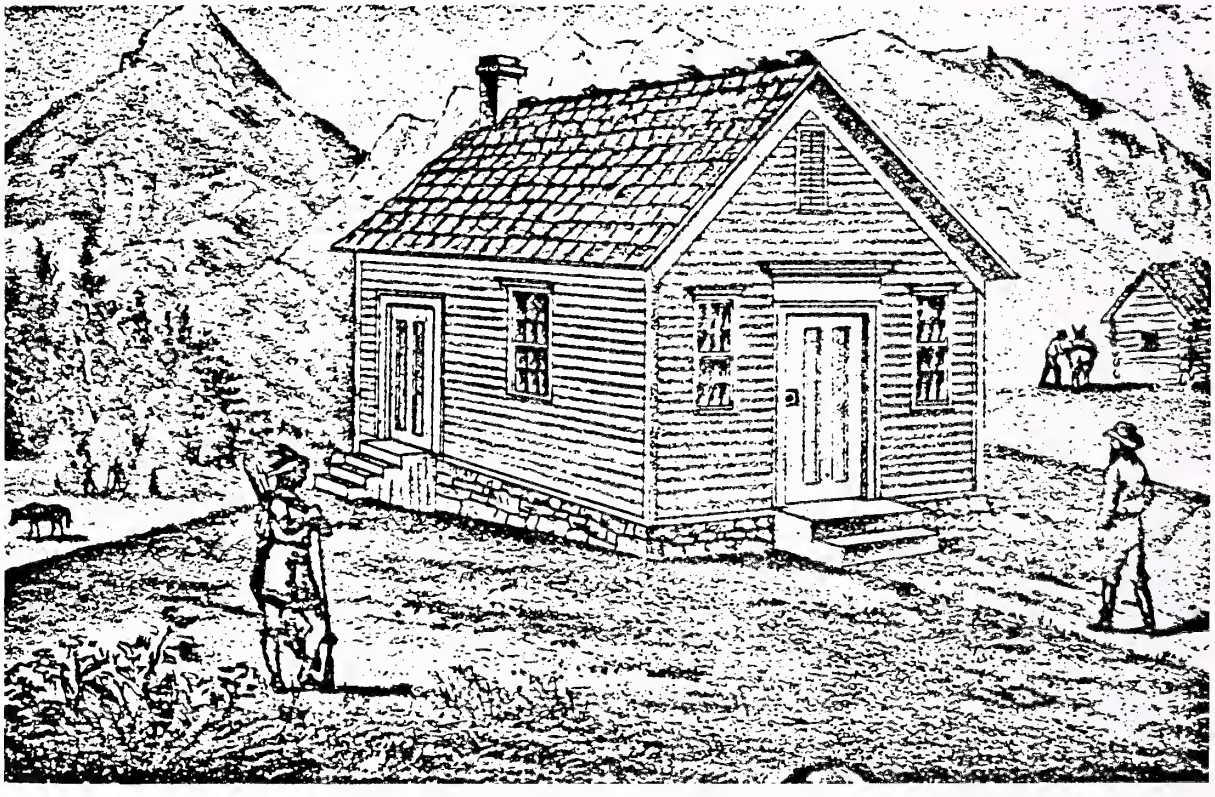
*The author is Chief Examining Physician for the Department of Health Services, Denver Public Schools.

schools, establishing reportable diseases (smallpox, cholera, diphtheria and scarlet fever) and describing adequate sanitary facilities in schools, including height of buildings, lighting, heating, and ventilation. Amazingly, fitness not only of pupils but of adult employees was considered:

> Do not employ a janitor because he is poor, your friend or a superannuated resident of the district. Employ him on account of his fitness to do the work required. He should be a person of intelligence and industrious.[3]

Politically, doctors were exposed early to the whims of local governments in relation to schools. The problems of autonomy of county commissioners versus the authority of the State Board of Health, especially in relation to isolation of persons with communicable diseases, raged between 1894 and 1899. Battles in Huerfano County and La Veta over outbreaks of smallpox led to statutes giving the State Board of Health power to supersede local boards of health whenever necessary. Suddenly the State Board was no longer relegated to an advisory capacity only, but developed teeth, as the supreme sanitary authority of the State. With such strength, the Board proceeded to issue a publication, Circular No. 17, "Contagious Diseases in Schools," which was distributed by the State Superintendent of Public Instruction, Mrs. Helen L. Grenfell, to every school district in the state. A year later another circular, "Management of Contagious Diseases," was issued and Mrs. Grenfell sent out some six thousand copies to school districts. Physicians and educators had joined forces in educating the public in prevention of disease.

A report by M. Beshoar, M.D., member of the Committee on General Hygiene of the State Board of Health, devoted several paragraphs to school hygiene and referred to Superintendent Gove's earlier report on ideal school facilities. Dr. Beshoar dwelt at some length on current poor conditions in the Trinidad High School and its annex noting that in the latter "sneezing, coughing and sore throats are common as well as in the main building, where headache prevails." Recognizing even then as now that taxpayers were frequently unwilling to accept increases in spending at the request of school boards he added: "If proper protection of the health of our young in the formative years of their lives cannot be otherwise secured, it would seem to be the duty of our lawmakers to provide for it by compulsory legislation."[4]



Boulder claims Colorado's first school building, erected in 1860 for that purpose. (From a pioneer drawing later published in the Colorado Magazine; courtesy Colorado State Historical Society)

But enabling legislation was not so easily obtained. Again the State Board of Health and local boards were tested, this time on compulsory vaccination of school children against smallpox and since there was no state statute compelling vaccination, it became the responsibility of local towns and counties to issue orders in epidemic periods. In La Junta, where the city council passed an ordinance compelling every pupil of the public schools to be vaccinated, a local irate citizen demanded from Judge Voorhees of Pueblo a writ of injunction restraining the school board of that county from preventing his children from attending public schools purely because of failure to be vaccinated. Judge Voorhees denied the applications. In Montrose County, the board of commissioners, sitting as a board of health, passed a resolution requiring evidence of recent successful vaccination of every pupil desiring to attend public school. Most of the county's twenty-three school districts complied, but a few did not. The commissioners brought suit against those districts, and the judge hearing the case refused to acknowledge the power of the local board nor the responsibility of the school board to uphold the local board of health in any such order. An appeal was made to the Supreme Court for a reversal of the local judge's ruling, and in November, 1901, the Attorney General of Colorado wrote that the county superintendent of schools had no authority to interfere with the police powers of the board of health. Following these local disputes, the authority of the State Board of Health and local health boards over local school boards in health matters seemed firmly established. In January, 1902, the following ruling was issued to all school boards, signed by Helen L. Grenfell, Superintendent of Public Instruction, Charles C. Post, Attorney General and David A. Mills, Secretary of State (comprising the State Board of Education):

> It is hereby ordered by the State Board of Education in accordance with Section 3966, Mills' Annotated Statutes, that all school boards of the State of Colorado be instructed to comply strictly with all such regulations as pertain to their schools, when the same have been approved by the State Board of Health.[5]

School Health Patterns Develop

But mandatory vaccination on a statewide basis was not to occur, despite local policies for such control. Court cases continued over the next several years on compulsory vaccinations

Arapahoe School, between 17th and 18th Streets, built in 1872 (opened in 1873 by Dr. R. G. Buckingham as President of the School Board) as Denver's first school structure built as such. First it was both an elementary and high school; in 1888 a separate high school (soon thereafter re-named East Denver High School) was built at 19th and Stout Streets. (Courtesy Denver Public Library Western Collection.)

against the wishes of many of the people. Wisely the State Board of Health did not press for statewide enabling legislation in this regard.

In 1904 the State Board of Health recommended systematic examination of sight and hearing of all pupils to be carried out by the classroom teacher at the beginning of each school year. Upon report from the Hygiene Committee, the following advice to teachers was given:

> All examinations should be made in private, notation of drainage from ears, free breathing through either nostril, mouth breathing all to be noted by the teacher and reported to the family either by teacher or principal.[6]

However, it was not until 1909 that Mary E. Bates, M.D. of Denver developed a comprehensive bill, "The ('Bates') Colorado Law for the Examination and Care of Public School Children." Introduced into the Colorado legislature by the Hon. Alma V. Lafferty the bill, with amendments, was passed in June 1909, endorsed by school administrators, teachers and the Denver Medical Society, to name but a few. Specifically the act provided for individual tests of sight, hearing and respiratory capacity of all pupils in the public schools of the state during the first month of each school year. And of 58,798 children enrolled in 54 counties of Colorado, 41,546 were found defective in some respect.[7] The requirements of the law providing for examination and care of children in public schools was now mandatory upon teachers, principals and county superintendents. Under terms of the law, prosecution for failure to comply was obligatory under the State Bureau of Child and Animal Protection, with fines, imprisonment, or both for conviction. Actually, this law required upon completion of the inspections, referral to competent medical consultation those pupils with any suspected remedial defect. Unfortunately, the legislature in one of its amendments included the words "without use of instruments and without coming in contact with such pupil," in carrying out these inspections, certainly hampering to the teacher, nurse or physician, from checking suspected defects with any degree of thoroughness.[8] But at least Colorado finally had some form of enabling legislation for the health and well-being of school children. Recognizing the slowness and general unwillingness for establishing any laws regarding health measures in school systems, Dr. Oberteuffer has said:

> There is, of course, considerable debate as to how far the school should go in the development of a complete program within the school. It must be borne in mind that what the school can provide and pay for from public funds is dependent wholly upon legislative permissions. Without enabling legislation, the school can provide no services of any kind at public expense.[9]

But meantime physicians around the state were expressing concern over their responsibilities in regard to school health. Dr. Stuver of Fort Collins continuously pointed attention to methods of education which were not conducive to good health in children. Relentless in his criticism of poorly ventilated rooms and no chance for children to get up and move about, he early brought into focus our present trend toward improved mental health in the classroom. Prophetic his words:

> In the great majority of instances, even the life of the kindergarten is smothered by the blighting curse of formalism and routine, and instead of being a blessing it becomes a curse, and through ignorance or disregard of the most rudimentary physiological laws, lays the foundation of physical defect or disease.[10]

Saguache and Greeley Doctors Lead the Way

Dr. J. Tracy Melvin, Saguache, stressed the need for medical supervision in the schools, noting that in rural areas parents were far less enthused about outside authority meddling in what they considered their own prerogatives for their children's health. His concern about the slow learner in the regular classroom could have been written as well today. And his pithy remarks about the mental health of not only pupil but teacher again pointed toward the early recognition of the need for adult employee health appraisals.[11]

The State Board of Health in 1916 issued in its annual bulletin laws and regulations affecting school health. Regulation 73 noted the importance of a pre-entrance physical examination of all school children, with follow-up periodic medical inspections throughout the school year. Private physicians, health officers or school inspectors were authorized to carry out these examinations. Further regulations required teachers and janitors to be free of communicable disease. School medical inspectors and health officers were notified that they should require the resignation of any school employee with known tuberculosis or syphilis. Children to be admitted to

Sue E. Williams, R.N., one of Denver's first school nurses, shown in a 1906 photo with some of her charges in front of the old Webster School.

either public or parochial school were to be examined, with a report (presented to the superintendent, principal or teacher in charge of each school) concerning their freedom from physical or mental defects. Communicable disease found in a pupil constituted grounds for that child to be refused admission to school, the parents notified as to reason, and proper medical attention advised. Then only upon presentation of a certificate from a licensed physician was the child to be admitted to school.[12] Despite these complete and detailed public health laws, there were no statutes in the legislature beyond Dr. Bates' legislation, and frequently the 1916 "Rules and Regulations" of the State Department of Health were not enforced. It wasn't until 1919 that the governor signed an act passed by the general assembly which provided enforcement of the regulation, and reporting of venereal diseases by physicians.

> Through the operation of the clinics and follow-up workers, hundreds of children under 16 years of age have been found infected with venereal disease and necessary advice and help rendered.[13]

But the Bates law and later the "Rules and Regulations" of the State Board of Health were having an effect on school health planning. In 1916 Dr. Duboff of Greeley wrote on the problems faced by small cities in carrying out public school medical inspections. Reflecting that Greeley was typical of small communities, Dr. Duboff stated:

> Greeley is in one of the three states in which school inspection is mandatory. (The others are Massachusetts and New Jersey.) However, the law does not specify that the examinations must be conducted by a physician. In the rural districts and small towns, the work is done more or less efficiently by the teachers. Greeley has employed a regular physician for the last three years.[14]

Dr. Duboff carried out his examinations in the schools, utilizing an empty room and sending for a group of five or six children at a time. He then performed his examinations and made permanent health records in a loose-leaf notebook, one for each child, so that the medical records could follow the child if he transferred to another school. Dr. Duboff strongly advocated the use of the physician in the schools, not only to detect physical defects, but to educate teachers, parents and the public on health needs. Such employment of a physician by a community in Colorado for work in the schools was indeed unusual. Dr. Duboff's employment preceded the program established by the Denver School Board by some nine years.

Case-finding of remedial medical defects in children was hampered in Colorado for many years until the passage of Title V of the Social Security Act in 1935. Through the Children's Bureau this act allowed local states to develop Divisions of Crippled Children under their state public health programs. The year before passage of Title V on the national level, the Colorado Child Welfare Bureau and Colorado Society for Crippled Children had made a study of needs in this area. Roughly 1,000 children were found to need treatment, and early identification and later follow-up were both found to be inadequate. Upon passage of Title V, coordination of activities of the State Health Department with the Department of Education and Vocational Rehabilitation Bureau was made possible, and children with special needs not met by the regular public school programs could be assured assistance.[15]

Special credit must be given here to those physician specialists who have volunteered their time to travel to distant clinics around the state, evaluating and providing treatment for orthopedically handicapped children, epileptics, children needing plastic surgery as the result of congenital deformity or accidental injury, and children requiring otolaryngological and ophthalmological care. These dedicated physicians are too numerous to list in this paper, but their service to children will be remembered with gratitude by all of us who work with school health programs.

With the passage of other federal enactments, Colorado began a state-wide health council toward organization of public health workers, and toward development of numerous programs to strengthen not only school health but all of public health. In May, 1938, the Colorado Public Health Association was established, with Dr. Amos Beaghler, Dr. Roy L. Cleere, and Dr. Omar R. Gillett and Lucile O'Reilly as its first officers. From this beginning, to the appointment of Dr. Florence Sabin by Governor Vivian in 1944 to chair a "Subcommittee on Health" of the Post-war Planning Committee, to the explosive McGavran Report in 1947 on up to the present day, school health became a prime concern not of a few scattered and enlightened physicians but of the whole state of Colorado.

Development of Denver's School Health Program

Although the Denver School Board hired its first nurse in 1906, it was not until 1922 that it decided to proceed with health work on any organized scale. In May, 1922, the School Board hired two school nurses and two examining physicians, Dr. Amos Beaghler and Dr. C. O. Eigler. The latter were to examine children referred by teachers. From May 15 to June 15, 1922, they examined 1,907 children in 24 schools, finding 1,272 defective children: 770 with diseased tonsils and 650 with defective vision. Follow-up was carried out by the nurses during the summer.

With this demonstration of need, the school board hired a supervisor of nurses and three more staff nurses, and continued the appointments of Dr. Beaghler and Dr. Eigler for the next school year. During that year the department of health education was formally organized, with Dr. Beaghler as director. The nursing staff was increased to ten nurses and the medical staff augmented by three more physicians. By the 1924-25 school year, the department consisted of a full time medical director (Dr. Beaghler), five half-time examining physicians, a supervisor and assistant supervisor of nurses with 13 staff nurses. During 1925, a part-time "hard-of-hearing" class was established in one of the elementary schools, with a special school for the orthopedically handicapped begun in 1928 and a program for the partially sighted started in 1930.

In 1929 Dr. Atha Thomas was appointed to do special posture work in the junior and senior high schools, and remained in this capacity until 1931. He was succeeded by Dr. George Cotton who remained until his death in April, 1937. Currently (1971) his son, Dr. Ralph Cotton, a Denver orthopedic surgeon, is acting as consultant to the Health Service Department in certain posture programs being carried out in the secondary schools. The year 1929 also saw the name of the department changed from that of Health Education to Health Services, a name it carries today.

With the acceptance of a health program within a school district by a Board of Education, one must not lose sight of the prodding of administrators and physicians by their medical confreres. Dr. John W. Amesse served often as such a catalyst in remarks such as these:

> However discordant the views of the general public may be with respect to the safeguarding of our potential citizens, the medical profession itself stands unalterably committed to the principle which demands that the inexcusable sacrifice of child life in this country must cease. . . .Preventive medicine constitutes the keystone of our efforts here, but the propaganda can have no lasting influence for good, however exalted its aims, unless every practitioner, regardless of his sphere of activity, feels imbued with that personal sense of obligation which outweighs so heavily technical skill or ponderous erudition.[16]

In 1932 Dr. Beaghler was named president of the Western Branch of the American Public Health Association at its June meeting held in Denver, and even under the curtailing conditions forced by the Depression, continued to maintain his department (despite a 10 per cent salary cut for all personnel) and to interest outside groups in assistance for needy children. The Junior League continued to finance special nutritional programs, a program begun in 1930, and the Lions Club, Schleier Fund, other clubs, private citizens and local dairies contributed milk to various schools.

By 1934, the Red Cross had organized a class for mothers in "Home Hygiene and Care of the Sick," and from that year continued to the present offering programs to pupils, teachers and parents. School physicians and nurses began a series of health education lectures for high school students covering first aid, personal hygiene, home and city sanitation and social hygiene. Here was the beginning of the teaching of programs known today as "Family Life Education" or "sex education," which is currently under such widespread debate nationally. But Dr. Beaghler organized with PTA leaders a "School of Instruction in Health Education" for the health-and-play-

ground chairmen of all local PTA groups. These lectures were given by school and local physicians every two weeks, were very well received, attended by considerable numbers of parents and no doubt aided in parental acceptance and understanding of the schools' role in health education of their children. They were continued annually through 1942, and much is owed the many Denver physicians who contributed to the success of this program.

Cheltenham school annex, 1922. An open-air annex for 7th and 8th grade pupils who were non-tuberculous but known to be TB contacts or were undernourished, such pupils being required to have outdoor rest for one hour after special free lunches had been supplied to them.

In 1937, cooperating with the Denver Tuberculosis Society, tuberculin tests were offered all pupils in the senior high schools. The following year, all incoming students were offered tests, as well as those who had not been tested the previous year at the senior high school level, and the program was expanded to include all the junior high school students whose parents wished. X-rays and follow-up were provided for all positive reactors. Cooperation and assistance from the Denver Tuberculosis Society and Colorado Tuberculosis Association have continued to the present time, coordinated with the schools' educational programs.

In 1938, the department was reorganized to include a second full-time physician as assistant director under Dr. Beaghler. For the fourth year, the PTA lectures on health continued, and the Denver Tuberculosis Society continued its program, this year including elementary schools. Dr. Beaghler was named president-elect of the American School Health Association in October, 1939 to serve in 1940. The caption beneath his picture in a local newspaper identified him as:

> Dr. A. L. Beaghler, Director of Health Service, Denver Public Schools, whose 18 years of able and meritorious work in helping to place the Denver schools in the forefront for health ratings brought him the honor of election as national president of the American School Health Association at its annual meet.[17]

Dr. Bradford Murphey, noted psychiatrist for both children and adults, was appointed in January 1941 to the position of part-time advisor and psychiatrist. His duties included lectures to teachers, principals, Parent-Teacher Association groups, as well as counseling individual employees and children with emotional problems. To this day, Dr. Murphey willingly takes time to offer consultative assistance to the Department of Health Services and his wise assistance has been invaluable not only to Dr. Beaghler but to the latter's successors.

School Health Concepts Broaden

Dr. Amos Beaghler retired in 1949, the recipient of many local and national honors in the field of public health and school health. He was a physician, an educator, and an administrator who was able to build bridges between schools, private medicine and public health. By gentleness and persuasion he overcame resistance from various groups and succeeded in developing carefully, under the School Board, a Health Service Department which could meet the needs of

Amos L. Beaghler, M.D., first Director of Health Services for Denver Public Schools, who organized the Health Services Department in 1922 and served until his 1949 retirement.

Leland M. Corliss, M.D., who succeeded Dr. Beaghler as Director of Denver's School Health Services in 1949 and held the position until he retired July 1, 1970.

schools and the demands of the community. During his years as administrator, concepts of school health were developed from their earliest beginnings in the areas of sanitation and communicable disease control to recognition of physical defects. With the coming of Dr. Leland M. Corliss as his successor, the emphasis was seen to change locally and on a national level slowly, from classification and identification of defects to the broader concepts of counseling and guidance. Today the recognition of learning disorders in children relating to home and school environment, along with counseling in areas of smoking, drugs, alcohol and sex education constitute the emerging areas of concern locally, statewide and nationally.

Dr. Corliss began his duties as director of the Health Service Department under the Denver Board of Education in the fall of 1949. At that time members of his department consisted of a full-time Assistant Director, Mildred E. Doster, M.D. (who in this capacity since 1940 has continued to balance endeavors through her wisdom), plus nine part-time physicians, two of these psychiatrists; a supervisor of nurses and 37 staff nurses; one full-time dentist, two part-time

dentists, a full-time dental assistant and a part-time dental hygienist; two full-time audiometrists; five full-time secretarial and clerical members; and a consulting otologist and oculist. These members served approximately 3,000 adult personnel and 52,000 pupils.[18]

Dr. Corliss was not a man easily intimidated. This was fortunate, for his arrival was just two years behind the controversial McGavran Report, published in 1947. Anyone less brave would have read that critical review of poor health standards in Colorado and promptly returned to his home state of Maine! The McGavran Report pointed out that one of the problems of public health services, specifically those in Denver, was that of adequate compensation to obtain and hold good personnel. Salary ranges were noted to be too low in medical, dental and nursing fields. Also, services were notably hampered by antequated legislation, based on specific laws governing inspection of vision, hearing and throat examinations (still without touching the child!). There was no uniformity over the state and certainly no compulsory school examination law in Colo-

John M. Lampe, M.D., current Director of Denver's School Health Services, seen examining a high school athlete.

Mildred Doster, M.D., Assistant Director of Denver's School Health Services since 1940. Current policy requires periodic examinations of all school employees as well as pupils.

rado. Hence all examinations had to be voluntary on the part of the parents. There was considerably more in this report which proceeded to shake up everyone in the state who had any direct responsibility with health problems.[19]

Having read the McGavran Report, Dr. Corliss set about the business at hand. During his first year as director, an advisory school health committee was formed at his request in the Denver Medical Society. Its original seven members represented the fields of pediatrics, general practice, dermatology, ophthalmology, surgery and psychiatry. Called upon for recommendations in areas of pupil and adult health problems, this committee has continued to function since its inception. Today, under the Commission on Public Health of the Denver Medical Society, it serves in an advisory capacity to the schools. In addition, personal correspondence from private physicians with recommendations to the Health Service Department have been of inestimable value in benefiting children and adults in the schools. Currently nearly all of the county medical

societies throughout the state have similar advisory groups on school health problems. Perhaps consisting of only two or three members, these men voluntarily give their time as consultants to Boards of Education to assist in solving health problems in schools.

In addition to county medical society advisory groups, the State Medical Society developed a School Health Committee, initially a subcommittee of the Medical Society's Health Education Committee. Activities of this special committee were coordinated with the Advisory Committee on School Health to the State Board of Education.[20] Today the School Health Advisory Committee serves the Colorado State Department of Education in specific problems relating to school health and is made up of members from the State Education Department, the Department of Public Health, physicians, dentists and nurses, PTA members and representatives from numerous voluntary health agencies.

Dr. Corliss retired July 1, 1970 and was succeeded as Director of the Department of Health Services for the Denver Public Schools by Dr. John M. Lampe who had been Chief Examining Physician for the department for several years and was fully indoctrinated in Dr. Corliss' policies.

Dental Needs Recognized

In the provision of health services around the state, the history of the development of dental programs deserves special recognition. Philosophies of meeting the needs for dental care for pupils have been parallel to those in medicine. Again quoting Dr. Oberteuffer, one can view the problems inherent in providing such care:

> The principal step in determining the scope and limitations of dental services provided by schools must be the establishment of objectives. What does the school believe should be done about children's teeth? What sort of care are children entitled to? What care is necessary for their best interests? . . . The school must choose, therefore, from the variety of services available in dentistry and education. . . . If the school recognizes the desirability of attaining each of those objectives it must then determine which ones it may deal with directly, which it must ignore, and on which it may enlist the aid of other agencies or persons.[21]

On such a philosophy and sparked by a letter from the National Dental Association's "Committee on Oral Hygiene in Our Public Schools" sent to the Denver Dental Association in 1901, the latter organization, formed in 1897, started a review of oral hygiene needs in children. In 1909 the Denver Dental Association appointed a committee to inspect the teeth of Denver school children, but not until 1911 was a voluntary plan of free dental coverage to needy children approved by the Denver School Board. Through this joint effort the Denver Dental Association provided dentists, while the School Board supplied space, materials and provided the salary of a dental assistant. By 1913 the School Board agreed to assume financial responsibility for the clinic, and it was integrated into the Denver Public School system, with a full-time dentist and dental assistant.[22]

The Colorado Springs Dental Society, formed in 1904 and inspired by its unique water supply containing high amounts of fluoride, devoted its early history to the study of enamel mottling in school children and adults. Recognizing that other dental needs existed in the school population the Colorado Springs Dental Society offered a program to the School Board of Colorado Springs somewhat similar to that offered in Denver. The program in the Springs, however, continued on a volunteer basis until 1914 when a full-time dentist was hired and paid for not by the School Board but by the Colorado Springs Dental Society. In 1915 the Colorado Springs Health Department took over the clinic, and it has continued as a joint venture of the City and the El Paso County Health Departments and the local School Board.[23]

Meanwhile the innovative program of a school-sponsored dental clinic in Denver was not without its problems. Local citizens complained about higher mill levies, wasteful expenditures and extravagances in Mayor Speer's administration. The Denver Post in 1920 obtained an injunction preventing the School District from employing health workers or performing health work, a move which put a stop to the dental clinic.[24] With a ruling of the Supreme Court prohibiting treatment on the books, it wasn't until 1921 that the Denver School Board took responsibility for the dental clinic. In 1923 the clinic came under Dr. Beaghler's department, and continues under the Department of Health Services at the present time.

Local politics and the Supreme Court ruling undoubtedly discouraged many school districts from developing school dental programs. Services, though offered in Sterling in 1923 by the Northeastern Colorado Dental Society, were turned down because the local School Board felt it could not afford to purchase supplies. However, Pueblo children who could not afford care were treated in a free clinic organized by the Southeastern Colorado Dental Society in 1924. The Weld County Dental Society instituted dental examinations of school children in 1934, though this service was apparently never taken over by the School Board.[25] In 1937 the Western Colorado Dental Society began a comprehensive program of dental education, with classroom lectures by the Mesa County school nurse and a health educator and follow-up annual examinations by the dentists. Indigent children were treated in a clinic funded through the Kiwanis Club by the Mesa County dentists.[26]

With the passage of Social Security legislation in 1935, the Division of Maternal and Child Health of the State Health Department began a statewide dental education program in 1937 with assistance from the State Dental Association and local school districts. In January, 1939, Dr. Robert A. Downs was directed to take a year of postgraduate training in public health at the University of Michigan. Upon his return to Colorado, a Division of Dental Health was established under the State Department of Public Health.[27] The programs of the newly formed division centered around examinations of school children and dental education, and from the beginning depended on cooperation of local dentists, school districts and service organizations for provision of care to indigent children. With the Division of Crippled Children, the dental program expanded to provide orthodontic work for those children who were eligible.[28]

Education, supervisory and advisory roles have gradually supplanted the original program of dental services under the State Health Department, as the population in the state has increased and more federal funds have been made available for local care. In 1944 the Joint Committee on School Health printed a handbook for teachers, which contains a beautifully written section on dental health.[29] From that time to the present, educational materials have been made available to teachers, school boards, physicians and dentists upon request to the State Health Department.

Importance of School Nurses

Perhaps the backbone of school health services around the state has been the school nurse. In 1906 Miss Sue Williams, a nurse with the Denver Visiting Nurse Association, was employed by the Denver School Board of Education as a school nurse. The VNA took her off general work and allowed her to follow the assignment directed by the Board of Education as a special school nurse. A letter of introduction was in her possession, signed by L. C. Greenlee, Superintendent of the Denver Public Schools, and directed to all Denver school principals notifying them to refer to her any cases of contagious diseases, skin diseases, eyes or ears, or any other cases that came to their attention.[30] Miss Williams found many discouraging moments, and reflected on the many hours spent consulting parents and doctors, visiting sick children in their homes, and transporting them for medical attention. She recognized that though often frustrating, school nursing was vitally important, and would provide a challenge to nurses from these early times far into the future:

> But I must say I give the most credit to the school nurse. Why? Because after a doctor diagnoses and prescribes and excludes the child from school, his responsibility ends. But the nurse follows up the child, instructs the parents and in many cases treats the child herself, and soon has the child back in school in good condition.[31]

So began the history of nurses hired directly by Boards of Education. Miss Williams was asked to continue another year by Superintendent Greenlee but she did not care to continue, and resigned without consulting the Visiting Nurse Association, which as she said very nearly cost her her job with them, though they eventually forgave her.

The Denver Tuberculosis Society, implementing its "Modern Health Crusade," a method for teaching good health habits made arrangements with the Denver School Superintendent, Mr. Cole, to carry out its program in one elementary school in 1918. The program was expanded in 1919, and by 1920 two public health nurses on the staff of the Society started work with the schools. They were soon overwhelmed by the needs of the schools and the Visiting Nurse Association, the Trained Nurse Association of Denver (now the Colorado Nurses Association), and private citizens provided salaries for the several nurses required.[32]

By May 1922 the Denver School Board decided to resume health work in the Denver Public Schools and two school nurses were employed by the district. The success of this venture was so well established that by the fall of 1922 the Board of Education employed a supervisor of nurses and three more staff nurses. With the formation of the department of health education, under Dr. Beaghler's direction in 1923, the nursing staff increased to ten nurses, and from that day school nurses have been employed by the Denver Board of Education without interruption, though occasionally suffering attacks when some taxpayers feel this service is not essential. In an article published in the Denver Post in 1955, titled "Dr. Corliss Defends School Nurse as Hub of Entire Health Program," Betty Jean Lee, staff writer for the Denver Post, noted that the nursing service had come under particularly heavy attack by city officials who wanted the Denver Public School nurses replaced by the city's public health nurses. Their rationale was a decrease in the schools' tax bill with an increase in the city levy. At that time there were 53 full-time nurses employed by the Denver schools. Dr. Corliss pointed out that the school nurse did not limit her activities to putting on band-aids and sending sick children home, but rather used her skills to discover health problems in the school and see that they were solved. She had to follow-up on known defects, plan appropriate programs based on physician recommendation for children with special health problems, answer questions regarding health from teachers, principals, and parents. Frequently she was responsible for coordinating programs in health with other concerned health agencies, and always she had to be a sympathetic and competent person in relating to children in all matters concerning their health.[33] It proved a good case for responsible journalism. The city administration eventually called off its dogs following an unsuccessful legal battle and school nurses continued to be employed by the Denver School Board. But such attacks frequently are based on insufficient education of the public on the services they receive. Miss Gertrude Cromwell, long the supervisor of nurses for the Health Service Department of the Denver Public Schools, has stated this well for all school nurses when she said:

The late Miss Gertrude Cromwell, R.N., who was Supervisor of Nurses for the Denver Public Schools, 1948 to 1963.

> In the area of public relations, the nurse is the connecting link between the school and the community. She needs to evaluate frequently the methods she uses in educating, not only the parents, but those taxpayers who do not have children in school as to the functions of the nurse who works in and represents the school to the community. . . . Her visits to the home and the parents' visits to her should be common everyday occurrences in any neighborhood. The manner in which these visits are received by the public is one of the criteria, indicative of the public's evaluation of the school health program.[34]

Prior to 1936 there was no special nursing section of the State Department of Health. Most of the work was carried out by various unofficial agencies, without any attempts at coordination. The majority of county nurses began their activities in the local schools, though statewide the school health program was often incomplete, since inadequate medical care was provided. In May, 1936, the Division of Public Health Nursing was established under the Colorado State Department of Health. In that following school year field nurses covering 30 counties saw 31,001 school children at various schools, making follow-up home visits on many where correction of physical defects or frequent school absences were problems.[35]

As the demands on their time grew, more and more of the state public health nurses had to turn to general public health needs rather than devoting their time exclusively to schools. And as

always, there simply weren't enough nurses to provide services. In 1941 the advisory nurse at the State Health Department responsible for school health services around the state took the leadership in organizing the Joint Committee on School Health. This committee, cooperating with the State Department of Education, helped to develop uniform school health policies for use throughout the state. A health handbook for teachers, "Conserving the Health of Colorado's Children," published in 1944 and mentioned previously was an outgrowth of the activities of this group.[36]

As general duties in county nursing services left public health nurses with less and less time to devote exclusively to school health responsibilities and follow-up care, the State Health Department Division of Nursing, as the Division of Dentistry, has had to rely more and more on educational activities, workshops, publications and consultative assistance to counties in the area of school health work. Currently public health nursing services and nurses employed directly by Boards of Education share in a balanced cooperative program to meet the health needs of school children. Boards of Education at present employ school nurses in 33 counties, involving some 56 local school districts in Colorado.[37]

The Changing Role of Physicians in School Health

From the time of Richard Green Buckingham, M.D., co-founder and first president of both the Denver Medical Society and the Colorado Medical Society, and who from 1868 to 1872 was president of the Denver School Board, medicine and education have moved forward together in the State of Colorado.[38] Whether from physicians acting in advisory capacities to school boards or from contributions of countless physicians in private practice to school children, or from physicians employed by boards of education, the emphasis has been on "good learning needs good health."[39]

More and more over the years have we seen the development of medical attention directed not only toward pupil welfare but toward improvement of health standards of all personnel working in schools. The development of a comprehensive pre-employment health appraisal of not only teachers but custodians, secretaries, lunchroom employees, and even administrators, has been well accepted in school districts around the state. Here again there are options of districts involved, depending on availability of physicians and their association with the local school boards. In the Denver Schools, Dr. Corliss early advocated and received approval for such employee physical evaluations. Statewide it has been recommended by the Advisory Committee on School Health to the Department of Education that all salaried and voluntary personnel present an official Health Certification for School Employment in Colorado, based on the Standard Medical Record for Employment of School Personnel. This certification, in addition to a statement of the prospective employee's physical and emotional status, should contain the report of a recent chest x-ray. And to be valid, the certification must be signed by the applicant and by a licensed physician acceptable to the local Board of Education.[40]

In physical education and recreation, medical appraisals are most important as a safety precaution for the varsity sports program. Contained in its recommendations, the Colorado High School Activities Association strongly urges routine pre-practice medical evaluations on all varsity players, and also medical coverage and supervision of athletic events.[41] How many physicians have volunteered their weekends to covering high school football games and basketball events, as well as wrestling and swimming meets cannot even be estimated. These physicians deserve the thanks not only of the players but of their parents for this devotion.

Today the physician is being consulted more and more in planning optimal school placement for the handicapped child. Recommendations from both the American Medical Association and the American School Health Association are being developed for less and less routine medical screening of all pupils at certain grade levels. Rather the emphasis for best utilization of the physician's time is being directed toward not only detection of physical impairments but also to early recognition of learning disorders in children. Whether these disorders are based on a purely physical problem, such as vision and hearing handicaps, or whether they fall into the group perhaps best known as perceptual disorders, the physician in the school environment is having to develop different skills in detecting these handicaps.

Dependence and involvement with local, state and national committees and councils both of medical societies and of public health groups as well as voluntary organizations such as those of cancer, heart, tuberculosis, hearing and vision are paramount in keeping the school-oriented physician informed. Each of the full-time physicians of the Denver Public Schools' Health Service Department belongs to and actively participates in many committees of medical societies and voluntary health organizations. The assistant director is immediate past president of the Colorado Public Health Association and the director is a past president of the American School Health Association. Such active participation in these organizations is essential to the strengthening of any school health department, and this fact has been recognized and encouraged by the Denver School Board and throughout the school Administration.

No longer can the physician in the schools depend solely on his own skills. He is dependent upon those of many paramedical professions from nurses to psychologists and social workers within the schools, to the resources of numerous community, state, and federal health agencies. In addition, he must look to, as well as direct, his educational talents toward countless voluntary agencies and civic groups. Without the cooperative efforts of all of these, school health, once relatively a simple concept, will not survive. That it must survive one need only conclude from the following statement by Dr. Corliss:

> The basic goal of our school Department of Health Services is to maintain and increase the mental, emotional, and physical fitness for all children and teachers. We are mindful of the important contributions made by school health programs to the whole community. These responsibilities are accepted in order that tomorrow's citizens may be healthier, happier, and more stable so they can cope most successfully with personal, home, community, state, national, and international problems as they arise.[42]

This survey of the history of public school health programs in Colorado is inadequate in many ways. It must remain simply as it stands, a superficial overview of what has gone on since the early 1800s in the development of school health, from an idea to an actuality. To all whom we have overlooked or have not had pages to mention but who have contributed to the ideals of a healthful school environment we apologize; but more we thank you, each and every one.

Editor's Note: In honor of Leland M. Corliss, M.D., former Director, Dpartment of Health Services, Denver Public Schools, who died shortly after his retirement in 1970, a memorial lectureship has been established in his name. The initial lecture will be given in the spring of 1971 on a topic of interest to the medical and allied medical professions relevant to school health.

REFERENCES

[1] Oberteuffer, Delbert, Ph.D.: *School Health Education.* Chapter 16, 333, Harper and Brothers Publishers, New York, 1949.

[2] First Annual Report of the Secretary of the State Board of Health of the State of Colorado. Denver, Colorado. Rocky Mountain News Steam Printing House, 1877.

[3] Fourth Report of the State Board of Health of Colorado. (Including the Reports for the Years 1892, 1893 and 1894.) Denver, Colorado. The Smith-Brooks Printing Company, State Printers, 1894. Page 179.

[4] Fifth Report of the Colorado State Board of Health. (Covering the Period from November 15, 1894 to November 15, 1900. G. E. Tyler, M.D., Denver, Colorado.) The Smith-Brooks Printing Company, State Printers, Denver, Colorado, 1900.

[5] Sixth Report of the State Board of Health. (November 1900 to November 30, 1902.) The Smith-Brooks Printing Company, State Printers, 1902, Denver, Colorado. Page 112.

[6] Seventh Biennial Report of the Colorado State Board of Health. (November 30, 1902 to November 30, 1904.) Page 45. The Smith-Brooks Printing Company, State Printers, 1904.

[7] Amesse, John W.: The Physical Examination of School Children. Denver Medical Times, XXXIV:421, 1915.

[8] Bates, Mary E.: The First Year's Experience With the (Bates) Colorado Law for the Examination and Care of Public School Children. Colorado Medicine, VIII:243, 1911.

[9] Oberteuffer, Delbert, Ph.D.: *School Health Education.* Chapter 13, 277, Harper and Brothers Publishers, New York, 1949.

[10] Stuver, Emanuel: Symmetrical Development, or Does Our Present School System Develop the Highest Powers of the Pupil? Journal of the American Medical Association, XXXV:1607, 1900.

[11] Melvin, J. Tracy: The Medical Supervision of Schools. Colorado Medicine, V:276, 1908.

[12] Annual Bulletin, February 1916. Colorado State Board of Health Laws and Regulations. Issued by the Colorado State Board of Health, Capitol, Denver, Colorado.

[13] Biennial Report of the Colorado State Board of Health. Period 1921-1922. Eames Brothers Printers, Denver, Colorado, Page 15, 1923.

[14] Duboff, William S.: Public School Medical Inspection in Small Cities. Colorado Medicine, XIII:345, 1916.

[15] State of Colorado Annual Report of the Colorado State Board of Health for the Year 1937. R. L. Cleere, M.D., C.P.H., Secretary and Executive Officer. State Office Building, Denver, Colorado.

[16] Amesse, John W.: Our Responsibility to the Young. Colorado Medicine, 21:208-211 (July), 1924.

[17] *The Denver Post,* October 15, 1940.

[18] Annual Report of the Health Service Department, School Year 1949-1950, Denver Public Schools.

[19] McGavran, E. G., M.D., M.P.H.: Health Survey of Denver, Colorado, 1947. Board of Health of the City and County of Denver.

[20] Survey Report of School Health Activities of State Medical Associations. Published by the American Medical Association, Chicago, Illinois, 1957.

[21] Oberteuffer, Delbert, Ph.D.: *School Health Education.* Chapter 13, 277, Harper and Brothers Publishers, New York, 1949.

[22] Douglas, William A.: *A History of Dentistry in Colorado 1859-1959.* Chapter III, 46, Johnson Publishing Company, Boulder, Colorado, 1959.

[23] *Ibid.,* Chapter IV, 74.

[24] *Ibid.,* Chapter III, 49.

[25] *Ibid.,* Chapter IV, 80.

[26] *Ibid.,* Chapter IV, 83.

[27] *Ibid.,* Chapter VIII, 176.

[28] State of Colorado Report of the Colorado State Board of Health for the Years 1946-1947.

[29] Conserving the Health of Colorado's Children – A Handbook for Teachers. State of Colorado Department of Education and Division of Public Health, 1944.

[30] History of the Denver Public Schools' Health Services Department. Unpublished. Courtesy of Mildred Doster, M.D., Assistant Director.

[31] Seventh Annual Report of the Visiting Nurse Association of Denver. 1906.

[32] History of the Denver Public Schools' Health Services Department. Unpublished. Courtesy of Mildred Doster, M.D., Assistant Director.

[33] *The Denver Post,* November 2, 1955.

[34] Cromwell, Gertrude E., R.N., M.S.: *The Nurse in the School Health Program.* Chapter 8, 114. W. B. Saunders Company, Philadelphia and London, 1963.

[35] State of Colorado Annual Report of the Colorado State Board of Health for the Year 1937. R. L. Cleere, M.D., C.P.H., Secretary and Executive Officer. State Office Building, Denver, Colorado.

[36] State of Colorado Report of the Colorado State Board of Health for the Years 1940-1945. R. L. Cleere, M.D., C.P.H., Secretary and Executive Officer. State Office Building, Denver, Colorado.

[37] Colorado Directory of Public Health Nursing Services. Colorado State Department of Public Health, Denver, 1968.

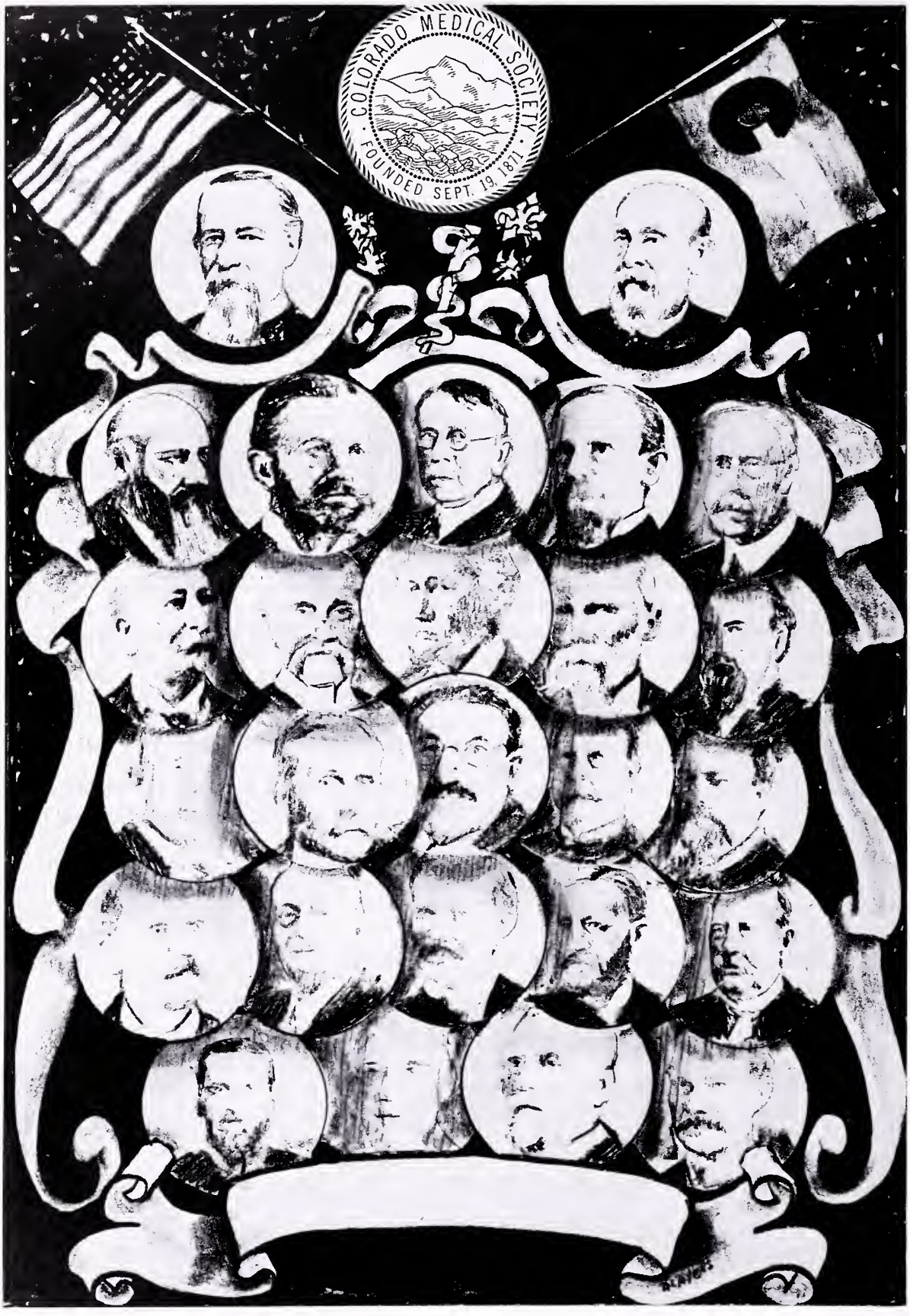
[38] Richard Green Buckingham, M.D., September 14, 1816-March 18, 1899. Biographical sketch by Clarence Cobb sent to Bradford Murphey, M.D., Colorado Medical Society Historical Archives. Unpublished.

[39] Good Learning Needs Good Health. Denver Public Schools, 1967.

[40] School Health Services Handbook for Administrators and Health Personnel. Colorado Department of Education. Byron W. Hansford, Commissioner. Denver, 1967. Page 22.

[41] *Ibid.,* Page 13.

[42] Health Service Department, Denver Public Schools. Forty-Third Annual Report, 1967-68.


COLORADO MEDICAL SOCIETY
FOUNDED SEPT. 19, 1871

CMS Presidents – The First Fifty Years

Harvey T. Sethman*

WHAT sort of doctors did the Colorado Medical Society choose as its Presidents through its first 100 years? What were their backgrounds? What were their dreams and hobbies, their special loves and hates, their foibles if any – and what careers did they achieve aside from holding this Society's highest office?

The following series of thumb-nail biographic sketches will try to answer those questions or at least point toward answers, but only in capsule form for each man.

In the spring of 1968 the Society's newly appointed Centennial Committee decided that a "brief, biographic, anecdotal character sketch" of each Past President should be a part of the Society's centennial year publication. The sketches were to be of uniform length and should include a picture of each man. The Committee asked this writer to undertake the task because he had worked under the direction of thirty-eight of the Presidents and had known a number of earlier ones who were still active in Society affairs when he was first employed in the spring of 1929. In the chronology of their presidencies, the earliest of these men known personally by the writer was Dr. Hubert Work, one of the truly greats. Then there were Drs. J. N. Hall, Robert Levy, Edward Jackson and a dozen other 19th century Presidents whose lives and medical society activity fortunately continued into the 1930s. Just to have met such men was a privilege; it was an even greater privilege to have had several of them as close friends and occasional traveling companions to medical society meetings around the state and to AMA sessions.

This study proved that some of these Past Presidents were truly great men and that a few were internationally famous. A few others were real "characters," with eccentricities more than matching their professional stature. Some were just average good doctors, respected by their colleagues and struck by the Medical Society's "political lightning" for reasons our records do not disclose. Perhaps a scant half-dozen had actively sought the office; most had accepted it with some reluctance as a duty they owed the profession and the Society; and some only under extreme pressure from friends and admirers.

Histories indicate that a few who reached the CMS presidency seemed to believe that their only responsibility was to accept the office as an earned honor, to appoint some committees, preside at the Annual Session and deliver a Presidential Address. But a majority of the Presidents throughout the century had obviously understood, and instantly, that the honor carried with it a heavy responsibility. They shouldered it willingly and ably, often at considerable personal sacrifice in terms of lost practice, diminished income and even less home life than that of their most busy colleagues throughout that particular year—actually for two years after the President-elect system took effect in 1919.

Readers will notice that one early President had to resign in mid-term because of serious illness and was succeeded by his Vice President, thus giving the Society two Presidents in one year. As World War I ended, another President served two years when the President-elect plan was adopted whereby each succeeding President took office a year after his election. Whether that single two-year term was deliberately planned or came about due to parliamentary accident in the House of Delegates, we have been unable to determine.

Pictures of most of the Past Presidents are from photographs taken at the time they were elected. In many instances such original photos were either not available or were unsuitable for reproduction, so pictures taken later in their lives appear here, and where it is known, the approximate year the picture was taken is indicated. And, admittedly, some of the earlier pictures leave something to be desired because they had to be re-photographed from the pages of old books.

*The author was the first Executive Secretary of the Colorado Medical Society, and served as such and as Managing Editor of the Rocky Mountain Medical Journal from June 1, 1929 until his October 1, 1965 retirement.

The first line of each heading indicates the Annual Sessions of CMS at which each President's term began and ended, except as indicated when a President resigned in mid-term due to illness and was succeeded by his Vice President, and in the one and only instance in which a President served two years while the President-elect system was being established.

Though this work was tedious and time-consuming, it was immensely rewarding. Often some book would be borrowed just to pin down a key date or some other simple but essential fact – only to find that the book could not be lain aside until it had been read from cover to cover! Anyone interested in what has happened in medicine, in public health, in social change, or in Colorado's general history for the past 100 years would have enjoyed it. Preparation of the series entailed biographic and related historical research and a study of each Presidential Address. A number of the Presidential Addresses were literary masterpieces, and several proved their authors to be accurate prophets with remarkable foresight into the future of medical practice, state and national political trends, changing sociology and general economics. Sometimes other papers written by the man concerned had to be studied before the sketch of his life was attempted. Repeated re-writing and particularly condensation had to follow in order to fit the allotted space. Most of the sketches underwent "radical surgery" because whole books could be written about some of these doctors.

And it was far from being a one-man job. It is impossible to acknowledge the writer's debt to all those who assisted, but a few must be mentioned. The CMS Historical Archives, laboriously assembled and indexed by Dr. Bradford Murphey when he was the Society's Historian, formed the greatest single source of information – as Historian Emeritus he is still expanding those files. Great help with regard to the first score of CMS Presidents came from the writings of Dr. J. N. Hall, notably his "Reminiscences of Past Presidents" (1932) and his "Tales of Pioneer Practice" (1937). Dr. A. J. Markley's 1946 paper scanning this Society's first 75 Annual Sessions was another fine source. The staffs of the Denver Medical Society Library and the Western History Section of the Denver Public Library were always generous helpers, and key assistance was obtained from several other libraries and historical societies. Scores of individuals – relatives, descendants, old friends and colleagues of the Past Presidents – helped in person, by telephone, and by correspondence from coast to coast. To each of them, this writer owes and extends a most sincere "Thank You."

A look at the Society's first fifty years of Presidents follows; those who served the Society's second half century will appear later this year in another Centennial Supplement to the Rocky Mountain Medical Journal.

R. G. Buckingham, Denver; First CMS President, 1871-72
September 14, 1816—March 18, 1889
MD 1836, Berkshire Medical College, Massachusetts

BEING one of the founders of the Colorado Medical Society, September 19, 1871, and its first President were not enough!

Dr. Buckingham and eleven others had already founded the Denver Medical Society April 11, 1871; he was its first President, too, and its first AMA Delegate. That summer Denver citizens re-elected him to a third two-year term as President of their School Board. In that capacity he had Denver's first high school built, on Arapahoe Street, and he personally opened it. Later it became East Denver High School. In 1874-76, as a Territorial Senator, he wrote the law creating School District No. 1 for Denver, and won a hard fight to create the State School for the Deaf and Blind. The Governor appointed him the first Chairman of that School's Board of Control.

He co-authored Colorado's first Constitution and helped steer it through the legislature. While still in that Senate, Denver elected him Mayor early in 1876. He campaigned for the Constitution, and by proclamation closed Denver businesses for the afternoon of election day, July 1,

so workers could vote. The Constitution adopted, Congress and President Grant quickly acted favorably and, as all should know, Colorado became a state August 1, 1876. In 1878 and again in 1880 and 1882 he was nominated for Governor, but each time he refused to run – he wanted to resume the full-time practice of medicine.

Dr. Buckingham was born in Troy, N. Y. He was graduated there from Renssalaer Polytechnic Institute. Then, to pursue medicine, he first studied a year under a preceptor as was that era's custom; afterward one year at Jefferson in Philadelphia and two at Berkshire (medical department of Williams College) brought him his MD. He practiced a few years in Alabama, two years as director of the U. S. Marine Hospital in St. Louis, and 21 years in private practice in Lexington, Mo. In 1863 he came to Denver, then a town of 4,000, by ox-drawn covered wagon. Records indicate he was one of the first half-dozen doctors actually settled here, although soon there were many more. He was a general practitioner with great interest in obstetrics, on which he wrote extensively. Later he delivered some of his own grandchildren and great-grandchildren. His fine home (for those days) at 14th and Champa Streets gave way in 1906 for construction of Denver's City Auditorium.

Dr. Buckingham was a beloved and dedicated doctor as well as a powerful pioneer in education and politics. His portrait adorns one of the 16 stained-glass windows in our State Capitol's dome which are devoted to great pioneers of Colorado. No wonder!

William F. McClelland, Denver; Second CMS President, 1872-73
May 29, 1821—April 12, 1901
MD 1849, Jefferson Medical College

HE HAD called to order that meeting of 16 doctors on September 19, 1871, to form a Territorial Medical Society. Before the meeting adjourned, nine more "signed up." He had already helped to organize the Denver Medical Association, serving on the committee which wrote its first Constitution and By-Laws. After his term as CMS's second President he served 17 years as its Treasurer. "He was a born organizer," one historian said, "and a forceful one." Another wrote that no physician exerted more influence upon medical affairs in the early history of Colorado than Dr. McClelland. He was CMS's first Delegate (as distinguished from Denver's) to the AMA.

Initial enthusiasm like that which marked the founding of this Society has a way of sagging for the next year or two, and CMS was no exception. Dr. McClelland must have had a difficult presidential year, for only ten members attended the second annual meeting, and the treasurer reported net assets of 75 cents! But under the McClelland leadership membership jumped from 27 to 42 and the treasury swelled to $150.00. His Presidential Address urged purchase of cheap land east of what was then Denver's outskirts, for eventual erection of a medical school. It is our guess that the suggested tract is now the city block just east of the State Capitol.

After his Philadelphia graduation, Dr. McClelland practiced six years in his native Ohio, then another six in Council Bluffs, Iowa, where he performed one of the earliest Caesarean sections in mid-America, saving both mother and baby. That case history was published in Boston and reprinted by European journals as well as American, bringing him renown.

He moved to Denver in 1862, certainly one of the earliest doctors to settle here, and he traded a wagon-load of bacon he had brought from Iowa for some lots at 15th and Lawrence Streets as the site for a home and office. Later the McClelland Block replaced them and became a turn-of-the-century Denver landmark.

Dr. McClelland, tall, spare, dignified and with a full, iron-gray beard, exerted influence far beyond Colorado, for he wrote many articles for the national medical press. Most of them concerned the effect of Colorado's climate on respiratory and other health problems, and his writings were credited with accelerating – and in some parts of the country initiating – the rush to our area by sufferers from tuberculosis.

George S. McMurtrie, Central City; Third CMS President, 1873-74
January 3, 1826—August, 1887
MD 1860, University of Pennsylvania

AT ITS third annual meeting, the Territorial Society voted to change the season of its meetings from September to June, so Dr. McMurtrie served as President only nine months. June meetings then became the usual custom until 1903 when September (rarely early October) became "Annual Session Month." He had been Temporary Chairman of the Society's 1871 organizational meeting, and at the close of the meeting he was chosen Vice President for CMS' first year. President Buckingham, busy also with other civic endeavors, called Dr. McMurtrie his "good right arm" throughout that year.

Dr. McMurtrie's Presidential Address at the close of his administration attacked "medical pretenders," apparently numerous at the time, as being responsible for wide distrust of the regular profession. He called for increased medical research and broad public dissemination of scientific facts to meet this problem. He also pleaded for more cooperation between doctors and for better communication within the Society, to speed the spread of professional knowledge and to improve organizational unity and strength. His speech would apply as well today as it did 97 years ago!

Dr. McMurtrie noted a problem then worrying the "established" citizens of Denver: "What means the large percentage of the sick among the increasing flood of visitors already filling the hotels and private boarding houses . . . and the daily letters of earnest inquiry, from the coast of Maine to the Pacific [seeking] information upon the climate, forms of disease, results of our treatment? These point to an idea abroad that Colorado possesses pecularities worthy of trial by those who have failed to receive relief from diseases in other places. . . ."

Dr. McMurtrie had practiced five years in his native Philadelphia, mostly at its Maternity Hospital, before coming to Central City in 1866. He was the only CMS President from a mining town until 1915, and only five doctors were practicing in the booming Central City district when he was elected. A "severe injury," not otherwise described by our historical sources, forced him to retire in 1885. He moved to Denver to recuperate, but complications kept him mostly bedridden until he died two years later – soon after an operation for removal of a bladder stone.

Henry K. Steele, Denver; Fourth CMS President, 1874-75
April 1, 1825—January 20, 1893
MD 1848, University of New York

"KNOWN among all classes of men as one of the very few public spirited citizens who regarded the welfare of his city as paramount to his own comfort or interests." So wrote a historian of Henry K. Steele in the "Biography of Colorado," pointing out that he consistently refused any compensation for the several city and state positions he occupied for more than 20 years. He practiced what he preached – that service to the community should be donated. He was short, compactly built, a skillful and sympathetic doctor, yet stern and firm in his decisions, quick and energetic.

He pioneered in health and educational fields. He was a founding member of both the Denver Medical Association and CMS, served as President of both, became President of the Territorial Board of Health in 1875, and in 1879 began five years as President of the reorganized State Board of Health. He was the first Dean of Denver University's medical school and at the same time its Professor of Surgery and Clinical Medicine. He served several years as President of Denver's School Board, and he was a founder of both the State Historical Society and the Natural History Society.

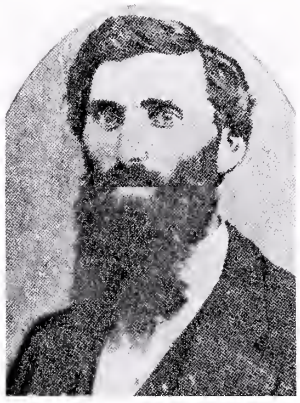
Dr. Steele was Denver's first Health Commissioner, stipulating that his "salary" be split between the two struggling young doctors who were to assist him, Henry Sewall and William P. Munn (both of whom later became CMS Presidents). He supervised the design and construction of Denver's first county hospital; the separate building set aside as a contagious wing was later named for him.

With all this activity Dr. Steele still maintained a successful practice and acquired enough savings to spend three years (1877-1890) studying in European medical centers and spas, writing copious notes toward improving medical, hospital and public health practices and public education back home in Denver.

Dr. Steele was an Ohio native, and he began practice with his doctor father in Dayton after college, medical school, and a Philadelphia internship. During the Civil War he was surgeon for the 44th Ohio Infantry and the 8th Ohio Cavalry. Soon thereafter he was elected Vice President of the Ohio State Medical Association, which named him an Honorary Member for life when he moved to Denver in 1870.

The Steele name continued in public service long after the doctor's death — a son and a grandson, Robert W. Steele, Sr. and Jr., both became famed Denver jurists.

William H. Thacker, Denver; Fifth CMS President, 1875-February 1876
March 20, 1840—July 30, 1876
MD 1862, University of Michigan



IN THOSE days there were no specialties as we know them today, but if specialties had been recognized, Dr. Thacker would have been accorded the status of an expert pediatrician. He loved children and all children loved him. It was said that he was the one doctor in Denver to whom any child could be taken without the usual childhood fears, tears, and dragging feet.

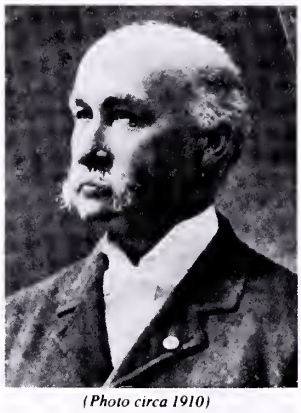
His own health was miserable. He had served briefly in the Union Army when civil war was threatening, then entered medical school. After graduation he served two years as a Union Army surgeon but was discharged after an attack of "pneumonia" (the scant records hint that it was more likely tuberculosis); shortly thereafter he moved to Denver to take advantage of its dry climate. Here he became known as a most courteous and cultured young doctor, always willing to help and especially skillful with children, even when seeming to fight for his own breath.

Dr. Thacker was only 35 when elected CMS President at the close of the June 1875 meeting. Considering both his age and his precarious health this was a great tribute by his colleagues. Then early in 1876 he became bedridden and resigned the presidency. Thus Vice President Dodge assumed the critical last months of that administration. (Until CMS established the President-elect plan in 1918, the President began service upon election and planned and conducted the next annual meeting.)

Dr. Thacker's interest in children developed early. He was born in Rochester, Ohio, and was reared in the nearby town of Defiance where he made a name for himself as a grade-school teacher while he was still attending high school. He made friends of all his pupils, and after his high school graduation near the top of his class (having attended only half days most of those four years) he had three months' enlisted Army service. After that he entered the University of Michigan as one of its youngest candidates for the MD, which he was granted, with honors, when he was barely 22.

All who knew him as a youth predicted a long as well as a brilliant future, and this seemed promised also by his early success in Denver. Death at age 36 ended that career all too early but he had left his mark deeply embedded in Colorado's medical organizations.

Horace O. Dodge, Boulder; Sixth CMS President, February-June, 1876
December 13, 1840—December 29, 1933
MD 1868, Chicago Medical College


(Photo circa 1910)

LITTLE Valmont was considered "the most promising town" in big Boulder County in 1871, in part because a railroad ended there. So when Dr. Dodge arrived in Denver that year he remained only a few months and moved to Valmont where a new physician was especially welcomed. A couple of years later the railroad was extended to Boulder, and Dr. Dodge moved there as Valmont seemed doomed.

He was immediately active in Boulder's medical and civic affairs. He chaired the committee which organized the first hospital for the University's medical school. He was county physician four years, alderman two terms, fire chief one term, coroner two terms and health officer 12 years. He became Professor of Materia Medica at CU, and he founded and was the first President of the Colorado School of Music.

Dr. Dodge was elected Vice President of CMS in 1875 and became President when Dr. Thacker resigned on a date our records do not reveal, some time in February of 1876. It fell to Dr. Dodge to plan, organize, and preside over the June 1876 meeting just as Colorado Territory was about to become the Centennial State.

With that coming event in mind, Dr. Dodge's Presidential Address reviewed 100 years of medical progress. "Imagine," he said in part, "the venerable gentlemen [of 1776] in their quaint dress and powdered wigs . . . filing into our hospital wards, gazing with wonder upon the vast array of pharmaceutical preparations. . . . What are their thoughts as they see the modern physician applying the thermometer, and basing his treatment and prognosis on its revelations . . . (or) . . . applying electricity to disease . . . (or) . . . the hypodermic syringe. . . . Their wonder knows no bounds as [a patient] inhales a subtle fluid and passes quietly into dreamland. . . ." [for surgery].

He summed up: "As in the past, so in the future. . . . I see the physician of a century hence smiling with self-complacent satisfaction when he favorably contrasts the status of the profession of his day with that of ours."

What a prophet!

Dr. Dodge was born on an Illinois farm and had entered Wheaton College when Civil War broke out. He enlisted as a cavalry private and served four years through a dozen major battles in which, miraculously, he was never wounded. After that came medical school, internship, and a year of practice in Riverside, Ill., before he moved to Colorado.

W. H. Williams, Denver; Seventh CMS President, 1876-77
November 5, 1840—March 15, 1895
MD 1867, Tulane University

LOYAL Unionists were in the majority of Colorado's scant and scattered population during the Civil War, but there was a sizeable minority of Confederate sympathizers. Fortunately, almost all of those pioneers were far removed from the war's tensions and were more concerned with the problems of their frontier towns and mountain mines. Thus they were quick to re-unite after that war toward building Colorado. This was particularly true of the early physicians. Most of them had hailed from "The North," but at their sixth annual meeting CMS members unanimously elected a former "rebel" as President, W. H. Williams, "from Mississippi by way of New Orleans."

Our records reveal nothing of his early life other than his Lexington, Miss., nativity, that he had served in the Confederate Army throughout the war, and had been graduated from Tulane's medical school two years after that war ended.

He came to Denver in 1869, suffering from tuberculosis. He recovered rapidly so that within two years he was actively practicing, had served as secretary of the organizational meeting of the Denver Medical Association and had then helped to organize the Territorial Society. He was immediately "accepted" as friend and colleague by the doctors who had fought on the Union side.

But he became controversial in another respect. In his CMS Presidential Address, closing his administration, he began, "sensibly," by pointing out that Colorado, then a State less than a year, must face and solve many problems in the medical and public health fields. The State Board of Health needed reorganization and other changes in the public health laws were immediately necessary. Colorado should have a law regulating the practice of medicine, for he suspected that too many medical diplomas (then the only prerequisite for practice) were counterfeit or forged and others represented questionable schools.

But the fur began to fly when he strongly proposed that new medical laws should recognize "female practitioners" and that medical schools should be open to women students. "Silly," "impossible," "immoral," were some of the kinder words used by what was then a majority of the CMS membership. The debate lasted for hours; then the whole matter of "females," "a question too hot to handle," was laid on the table for a future meeting.

Thomas G. Horn, Colorado Springs; Eighth CMS President, 1877-78
September 5, 1832—July 14, 1905
MD 1868, St. Louis Medical College

(Photo circa 1900)

DR. HORN founded and personally directed the mineral water company which became The Manitou Springs Co., and in so doing (soon after his CMS presidency) became a controversial figure.

He fought with Colorado Springs authorities over who was contaminating whose water – he claimed Colorado Springs was permitting pollution of his spring; Colorado Springs said "Dr. Horn's Spring" (its name at that time) and his sanitarium were polluting some of the town's drinking water. (Water pollution is seemingly not so modern a term as we thought – Ed.) With speech and pen he also fought health authorities and some of his colleagues who scoffed at his assertions of the mineral water's therapeutic value. Histories we have read disclose no firm settlement of these disputes.

Born in Martinsburg, Va., and reared as a loyal Southerner, Horn taught school as a youth and was graduated from St. James College at the age of 20. He went to St. Louis, studied pharmacy, then worked in a drug store while attending medical school for two years. Then the Civil War broke out and this Southerner volunteered for the Union Army, of all things!

He was a member of a scouting party when captured by the Confederates. All of the party but Horn were executed; he was spared because he was a "doctor." They made him a prisoner-of-war-camp surgeon, but after six months he escaped and made his way home, a victim of tuberculosis. After a partial recovery he worked in the Federal Hospital at Ft. Riley, Kan., and finally finished medical school. Years later, in 1872, the Missouri Medical College granted him a second MD degree.

He practiced in Kansas from 1868 to 1874, then moved to Colorado Springs, soon buying ranch land (now the town of Manitou) which included a "peculiar spring which issues quantities of bad-tasting water." Some Indian tribes had thought this water a great aid to health. Dr. Horn thought so, too, formed his company, built a sanitarium, and began bottling the water for sale.

When he died in 1905, Dr. Horn was the senior physician in Colorado Springs in years of service. In his later years he led several local civic enterprises; he also served eight years on the Board of Trustees of the University of Denver. He had hosts of friends and always a busy practice, even while managing his controversial spring, sanitarium and bottling company, and amassing a small fortune in real estate ventures.

Arnold Stedman, Denver; Ninth CMS President, 1878-79
February 22, 1839—March 22, 1913
MD 1865, Berkshire Medical College, Massachusetts

(Photo circa 1910)

THE "GENERATION gap" may always have existed, but there was nothing of that nature where Arnold Stedman was concerned. Doctors still living who were young and struggling to get started in the Denver profession any time between 1880 and about 1910 will swear that their surest friend and constant helper and confidant was this much older physician whose greatest love in medicine was helping young doctors toward success.

He also founded and nurtured young organizations. On behalf of the five-month-old Denver Medical Association he had sent out the invitations to all other doctors known to be in Colorado to attend the organization meeting that created CMS; then he served as its first Secretary. And, speaking of helping "the young," he was a co-founder of the Medical Department of the University of Denver and was its first Professor of Obstetrics. J. N. Hall wrote that he personally doubted if any Denver physician ever was held in higher esteem by both the profession and the public.

He was an early President of the Denver School Board, and Stedman School was named for him later. He built the Stedman Block at 14th and Stout Streets (on borrowed money) and made a great success of it because his devoted following within the profession quickly turned that building into what amounted to Denver's first medical arts building. A few oldsters may remember him yet as the principal speaker when the annex to Denver's Metropolitan Building was dedicated in 1910 as a combined library and meeting hall for the Denver Medical Society.

Dr. Stedman had come from Maine, a real "down-easter." The Civil War had interrupted his college studies and he served an enlistment in the Union Army. Afterward he studied medicine under a preceptor before finishing at Berkshire Medical College. He practiced in Maine until he moved to Denver in 1870.

He was a robust, hearty and wholesome person, seldom known to raise his voice except in laughter or in friendly greeting. He was one of the founders of the Colorado Historical and Natural History Society. He wrote for those Societies, recounting tales of much earlier days in Colorado before the railroads replaced stage lines.

In his CMS Presidential address, besides reminiscing about the founding of our medical societies, he congratulated the profession on its abandonment of the practice of bloodletting.

Boswell P. Anderson, Colorado Springs; Tenth CMS President, 1879-80
August 13, 1847—August 24, 1919
MD 1868, University of Virginia

(Photo circa 1912)

TWO HISTORIANS have called him the most picturesque and colorful character among early Colorado doctors — and the most handsome. He was the first physician to settle in Colorado Springs, right after his discharge from the Confederate Army, "chasing the cure" and blaming his tuberculosis on a Union bullet that he carried in his lung the rest of his long life. Whether it helped or not, historians agree that he "freely used a then popular treatment, the 18th amendment being unheard of at that time," and he made a full recovery.

Dr. Anderson was graduated in medicine from Virginia and studied another year at the old Washington University Medical School in Baltimore, obtaining a second MD degree. He became a most popular practitioner and did a great deal of surgery, but he was perhaps best known for his open-handed generosity; the parties when he wined and dined countless friends frequently lasted through the wee small hours. He was the

first CMS President from El Paso County, and he was one of the founders of both Glockner Sanitarium and Saint Francis Hospital.

At 18, this young Virginian enlisted in Mosby's Guerillas, a famed Confederate cavalry group. One night he crept toward the Union lines to attempt a trade with a Yankee sentinel, a common practice, but he was captured and taken before Gen. Wm. T. Sherman. The boy swore that he was no spy and was only trying to trade some tobacco for coffee for his ailing mother whose one wish before she died was for some good coffee. Sherman accepted the oath and told an officer to give the youth a sack of coffee and send him home.

Years later when Sherman was Army commander under President Grant and visited Manitou, Dr. Anderson managed an introduction and reminded the general of the incident. Sherman is reported to have wept and to have proposed a drink to celebrate the reunion. Old timers swear that the reunion in General Sherman's hotel room lasted several days!

Early in his Colorado career Dr. Anderson once sold his practice and moved to Denver, but after a year moved back to Colorado Springs and repurchased his practice from the same doctor. He became a friend of another great connoisseur of good food and drink, the late Spencer Penrose, and he was active in the Colorado Springs Cooking Club which Penrose founded.

Frederick J. Bancroft, Denver; 11th CMS President, 1880-81
May 25, 1834—January 16, 1903
MD 1861, University of Buffalo

HE WAS simply huge, six-feet-four and varying between 270 and 300-plus pounds, every pound of him famous for his infectious humor and continual joshing – famous also for his skill in diagnosis and surgery. He was as big professionally as he was physically, and his friends were legion. He even made a lifelong friend of truculent, warlike, Chief Colorow, with whom he exchanged practical jokes and whose gifts to the doctor are now prized by museums.

Dr. Bancroft arrived in Denver by stage in 1866, and he became a founder of the Denver and Colorado Medical Societies, the State Historical Society (President 17 years), the State Board of Health (President two years), Saint Luke's Hospital, Denver University Medical School, the Denver School Board (President many years) – and he was usually either chief surgeon or local surgeon for every railroad serving Denver.

He'd had wide experience as a Union Army Surgeon, and he was the only Union doctor permitted (and reluctantly since Bancroft was a Connecticut Republican) to treat Confederate President Jefferson Davis' painful facial disease while the latter was a Union prisoner.

Dr. Bancroft was both a gourmet and a gourmand. A friend of similar tastes took him to dinner at the just-opened Brown Palace Hotel. Each consumed two dozen raw oysters as an appetizer, then a large roast turkey was served as the entree. Dr. Bancroft looked mournfully at his host's choice and said "A turkey is such an awkward bird, a little too much for one and not enough for two." The host immediately ordered a supplementary roast chicken!

His buggy was built with extra heavy springs on the driver's side – he'd broken the springs of others, including that of his friend Dr. Jesse Hawes of Greeley; so when Dr. Hawes again called him in consultation he met Dr. Bancroft at the railway station with a hay wagon, much to the amusement of all concerned, including many bystanders.

Once he had to amputate the leg of a cowboy at Deertrail and ignored the patient's drunken brother who was swearing to kill Dr. Bancroft if his brother died. "Why worry?" the doctor said later, "I also wore a six-shooter and I'd have known at least a minute earlier than the cowboy if death were imminent."

He retired in 1899, suffering from diabetes, and spent his last four years in the warm climate of San Diego.

Harrison A. Lemen, Denver; 12th CMS President, 1881-82
September 26, 1840—January 21, 1905
MD 1864, St. Louis Medical College

HARRISON Lemen was almost never seen out of doors without a Prince Albert coat and a high hat, exhibiting a distinguished and scholarly appearance and exuding an air of unlimited self-confidence. Dr. J. N. Hall wrote of hearing Dr. Lemen state that he had never examined a case in which he did not make a diagnosis.

From several histories it is obvious that Dr. Lemen held himself in high regard, but from the same histories and the old CMS "Transactions" it is also obvious that some of his self-esteem was justified. Dr. A. J. Markley thought Dr. Lemen the most prolific writer in the Society's first 75 years. He appeared on almost every program of CMS and the Denver Medical Association for 25 years, with papers, case reports and reviews (all unquestionably with the approval of those program committees) and seemingly they were all published. He wrote extensively on "Pulmonary Consumption" but his published papers touched almost every aspect of medicine except surgical technique – he might be called Colorado's first internist.

His writing also leaves little doubt that he was the best read doctor of his time in Colorado. His Presidential Address was scholarly. He called for laws establishing privileged communication, for state action on expert witness fees and the rights of doctor-witnesses in court, for laws legalizing dissection and regulating the supply of properly obtained cadavers. He said that increasing knowledge made it time to stress preventive medicine.

Dr. Lemen was one of those who re-incorporated CMS as a "State" society in 1888; it had been officially "Territorial" since first incorporated in 1875.

He was born and reared on an Illinois farm, the eldest of nine children. One of his brothers, Lewis E. Lemen, also became CMS President, in 1897. Harrison Lemen studied medicine under a preceptor and obtained his MD while serving as a medical cadet in a federal hospital in St. Louis. He then became medical examiner for an Illinois military district and as the Civil War ended he organized and directed a military hospital at Olney, Ill.

Early in his Denver career he was a "charter member" of the State Board of Health. His hobby was gun collecting and his remarkable collection was the envy of collectors everywhere. He called his old firearms "my pets." He also wrote about guns, under a nom-de-plume, for eastern magazines.

Pembroke R. Thombs, Pueblo; 13th CMS President, 1882-83
December 1, 1839—April 28, 1902
MD 1862, Rush Medical College

HE WAS Pueblo's first surgeon, later Pueblo's first psychiatrist, Pueblo's first CMS President, and the first superintendent of the Colorado State Hospital, established in 1875 as the Colorado Territorial Insane Asylum. At the time of his election to the CMS presidency, the Society had just passed the membership total of 100.

Dr. Thombs was spoken of by contemporaries as one of the handsomest men in that part of the state, although he, like most physicians of his day, hid much of his visage behind a heavy moustache and beard. He was friendly, with an engaging personality and full of fun, but like many a later Superintendent of the State Hospital he was frequently "in hot water" and caught up in bitter controversies.

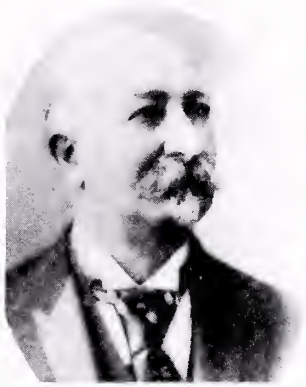
The first of these fires, so far as the records show, was ignited by his CMS Presidential Address. He advocated procedures which now, almost 90 years later, still cause medical, social,

legal and religious controversy – he insisted that the "State should have a care about the kind of people that are propagated," that "there should be laws to forbid certain persons from marrying, by quarantine if necessary," if there existed danger of transmitting any insanity, epilepsy or other brain problems to their offspring. Imagine the stir that speech caused in the Victorian age!

In 1898, while still heading the State Hospital, Dr. Thombs became involved in a long battle with the State Board of Charities and Corrections. Both he and Dr. J. T. Eskridge (then also a Past President of CMS and at the time President of the Board of Commissioners for the Insane) were involved, not for their own acts, but because some juniors at the hospital had caused some sort of scandal. Hearings were in secret and details are not available, but both men were eventually cleared. When Dr. Thombs, disgusted, aging and ill, resigned as superintendent in 1900, Dr. Eskridge succeeded him.

Dr. Thombs came from Maine following an enviable record as a Union Army Surgeon. He was once taken prisoner by the Confederates but was released in an exchange of prisoners before the end of the war. He settled in Pueblo in 1866, one of that city's first doctors, and was the leading surgeon in Southern Colorado until he took up, instead, the study of nervous and mental diseases.

William R. Whitehead, Denver; 14th CMS President, 1883-84
December 15, 1831—October 13, 1902
MD 1853, University of Pennsylvania



AT THE battle of Chancellorsville, he personally carried "Stonewall" Jackson, mortally wounded, from "no-man's land" to a field hospital, and a few days later the great Confederate General died in the arms of this future CMS President.

Dr. Whitehead had a fantastic military record. A native Virginian and a graduate of the Virginia Military Institute before he studied medicine, he served as a volunteer surgeon for Russia throughout the Crimean War, including the siege of Sebastopol, and was personally decorated by the Czar. Then he spent two more years in Europe earning another MD from the University of Paris in 1860 before returning to this country. He began private practice in New York City, but as soon as the Civil War broke out he hurried back to Virginia and joined the Confederate Army. He was captured by Union forces at Gettysburg, escaped, made his way to Canada, somehow managed to get back to Confederate territory, and served again with distinction until that war ended.

Once again he began practice in New York and though specializing in surgery he became Professor of Clinical Medicine at New York University. He was acclaimed for his success in cleft palate surgery, for which he designed instruments and techniques widely used for decades thereafter. Because of the failing health of his wife and a son he abandoned a highly successful practice to move to Denver in 1872.

Here he helped found Denver University's medical school, and he taught anatomy both there and at CU. He was President of the Denver Medical Society in 1877, served two terms on Denver's Board of Aldermen (now City Council) and several years on the State Board of Health.

Although a confirmed "rebel" in Civil War days, Dr. Whitehead thereafter was intensely United States-American in all his activities. Ten years after his own CMS presidency he fought bitterly, in both speech and writing, trying to prevent the election of Dr. E. J. A. Rogers as President of the Society – only because Dr. Rogers was of Canadian birth and at that time was not yet naturalized. But Dr. Rogers was elected. Dr. Whitehead, "a good sport," then turned an about face and helped to develop a successful administration for the man he had so violently opposed.

Jesse Hawes, Greeley; 15th CMS President, 1884-85
August 21, 1843—August 4, 1901
MD 1868, University of Michigan

"WHEN YOU get off the train I will shoot you through the head and after you fall down I will shoot you lengthwise. I was your prisoner at Cahaba." – an accurate quotation, according to family and friends, of a famous telegram sent by Dr. Hawes to an Alabama doctor who had written the CMS President of his intention to practice in Greeley. The Alabaman did not come to Colorado!

Young Hawes, as a small but tough Illinois cavalryman, had been captured with his 15-man advance patrol in an Arkansas battle. The Confederates sent them to the Cahaba prison, smaller than notorious Andersonville, but five times as crowded. The almost unbelievable cruelty, malnutrition and constant exposure killed hundreds in 1864-65. Only Hawes and two others of his 15-man patrol survived it. His well-written book "Cahaba; A Story of Captive Boys in Blue," published in 1888, is a factual and horrifying history, best read by those with strong stomachs.

Dr. Hawes was perhaps the first Colorado doctor to take a month off each winter for post-graduate study. He was a hard fighter for high principles, and a warm friend who helped many young doctors start their practices in Northern Colorado.

After his Michigan graduation he earned another MD from Long Island College Hospital in 1871, then studied in Europe before settling in Greeley. He was for years a Trustee of the State Normal School (now University of Northern Colorado), taught obstetrics at the old Denver Medical College, served on Colorado's first Board of Medical Examiners, and was the 1893-94 Vice President of the AMA.

One evening a rancher asked Dr. Hawes if it was really worth $3 to have his daughter vaccinated – one of her schoolmates had smallpox. "Well, let's see," Dr. Hawes explained, "You're 11 miles from town. If your daughter takes smallpox I'll charge you $15 for each house call, probably for two weeks. Meanwhile your other children will probably take it, and if I have any luck it will run on for six weeks. . . ." The rancher jammed on his hat and said "I'll bring 'em all in at 9 in the morning." Dr. Hawes knew how to persuade!

When he died, much too young, after months of angina pectoris, every business and bank in Greeley closed for the day of his funeral – a deserved but rare token of respect.

J. Culver Davis, Denver; 16th CMS President, 1885-86
Born in 1826—October 2, 1892
MD 1847, Castleton Medical College, Vermont

THROUGHOUT the Civil War he was the United States Consul at Zacatecas, Mexico, but he was amassing a fortune shipping contraband Confederate cotton to England via Matamoros, the Mexican port across the Rio Grande from Brownsville, Tex. Just before the war ended, this future highly revered Denver surgeon and CMS President invested his entire fortune in a larger ship and a huge cargo of high-priced cotton – and lost it all when Federal blockaders caught and seized the ship! So Dr. Davis stayed 10 more years in Mexico and rebuilt his fortune from an immensely successful practice.

He had been born and reared in Dutchess County, N. Y., and had studied medicine two years under his doctor-father before entering the Vermont medical school. His year of internship – rare in those days – was also in Vermont. He practiced two years in New York but developed tuberculosis. He sought relief, first in Texas for seven years, where he

became a Southern sympathizer, finally in Monterrey and Zacatecas, where he was Consul from 1860 to 1866 and where, even though a U. S. citizen, he served a term as Civil Governor beginning in 1870.

Evidently he was forgiven for his "double agent" type of activity there, for he returned to New York in 1876 and developed a large surgical practice. In his Texas days he had mastered the Spanish language. While there and while in Mexico, again after returning to New York, and even later in Denver, he published widely admired articles in the Spanish medical press of Mexico and Europe while also writing for American medical publications, mostly on surgical subjects.

In 1879 it was found that his wife had developed tuberculosis, long after his own had been fully arrested, so he left New York for good and moved to Denver. Here again, he attained medical prominence rapidly. Old-timers credited his quick rise not only to his excellent education and vast experience but also to his jovial, engaging and ingratiating personality. He soon became Dean and Professor of Surgery at Denver University's Medical School.

He diagnosed his own carcinoma of the stomach in 1891 and turned his practice over to a young associate, the well-remembered Dr. S. D. Van Meter. Dr. Davis died in Switzerland where he had gone in a vain search for relief.

John W. Graham, Denver; 17th CMS President, 1886-87
May 24, 1843—February 14, 1908
MD 1867, Jefferson Medical College

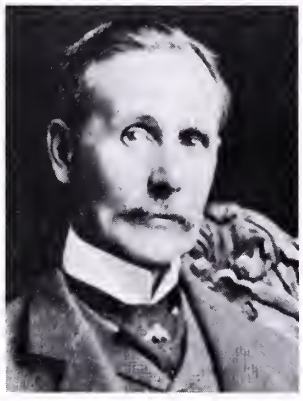
HIS PRESIDENTIAL address proposed "radical" innovations and changes in medical society activity. He was the first CMS President to advocate establishment of a medical library for state-wide use, the publication of a state medical journal instead of annual "Transactions," and complete reorganization of local, state and national medical societies, all to be based on county society membership, with state societies and the AMA to be controlled by houses of delegates elected in proportion to the membership of the lower bodies. He lived to see them all come to pass in almost the identical forms he had suggested.

Dr. Graham was known as a forceful teacher, both in and out of the classroom. Dr. Robert Levy used to recall "the lecture I will *never* forget," that he, young and new to Denver, received very personally from Dr. Graham. Both doctors had been called to the home of a girl suffering from "cholera morbus," with excruciating abdominal cramps. Levy arrived first and was writing a prescription when Graham came in. After they re-examined the patient together, Dr. Graham administered morphine by hypodermic, then drew Levy into another room, closed the door, and asked why he had not done so himself. Levy confessed he had no syringe with him. The lecture followed, to the effect that any doctor is guilty of gross neglect if he fails to have his drugs and equipment in perfect order and ready for any emergency.

At that time Dr. Graham was Professor of Medicine at the Denver Medical College. Before settling in Colorado he had been surgeon for the Union Pacific during its westward building, and when it met the Central Pacific at Promontory Point, Utah, he stayed in Utah until 1871 when he decided to "settle down for the first time since medical school," as he put it, in Denver.

In Denver he became as prominent in the business world as in medicine. He became a heavy investor in real estate including office buildings, and he also had extensive holdings in the Central City and Cripple Creek districts. After his CMS presidency he served many years as a Delegate to the AMA and shared with a later president, Lewis E. Lemen, the credit for bringing the AMA Annual Session to Denver in 1898. Dr. Graham personally put up $5,000 to guarantee an entertainment fund for that meeting.

S. Edwin Solly, Colorado Springs; 18th CMS President, 1887-88
May 5, 1845—November 18, 1906
MD 1867, St. Thomas Medical College, England



HE WAS the first Britisher to become a CMS President, being a native of London and a graduate of Rugby College before entering medical school. He was headed for a brilliant surgical career and was a member of the Royal College of Surgeons when he developed tuberculosis and came to Colorado Springs in 1874. Recovered, he virtually abandoned surgery, specialized in diseases of the lungs and larynx, and was soon known internationally as one of the truly great climatologists. "Solly's Climatology" became a standard American textbook.

It was Dr. Solly who devised plans for building special sanatoria that would be built and equipped solely to treat tuberculosis. With a minimum of architectural help he drew up the plans and specifications and supervised the construction of Cragmor Sanatorium. Several later sanatoria copied those plans. He was a founder of the National Tuberculosis Association in 1904 and served on its first Board of Directors. He was also a devout churchman; Grace Episcopal Church in Colorado Springs honors his memory with a large stained glass window.

As President, Dr. Solly urged CMS to elect future officers on the basis of "who has done good work and gives promise of good work in the future." He implied that candidates had too often been chosen because of "who they are, where they came from, and where they live." He endorsed the state medical journal and other proposals made by President Graham the year before, and a decade later he was one of the leaders in the final push that established our journal under its original title, "Colorado Medicine."

He loved Colorado Springs and thought it the best place in the world to treat TB, but friends often noticed his nostalgia for England and especially London. He always maintained his memberships in British medical organizations, and he subscribed to Britain's leading newspapers and magazines as well as its major medical journals, for several of which he wrote on developments in the treatment of tuberculosis.

After his presidency, Dr. Solly was elected Treasurer of CMS, and he still held that office in 1906 when his physicians insisted he try a low altitude because his heart was failing. He was visiting Asheville, N. C., "temporarily," that autumn when he died.

Samuel A. Fisk, Denver; 19th CMS President, 1888-89
February 9, 1856—January 18, 1915
MD 1880, Harvard Medical School

(Photo circa 1902)

HE WAS plagued by one serious health problem after another from youth until he died at not quite 59. In spite of this, his indomitable spirit, will to work, and devotion to scientific medicine, coupled with a seeming genius to make lifelong friends from the moment of first meeting, brought him almost unparalleled success during his comparatively brief career.

Dr. Fisk was only 32 when elected CMS President, the second youngest to hold that office in our first 100 years. (Later Robert Levy, also 32 when elected, set the "youngest" record by four months.)

Dr. Fisk had a fine education including a Yale BA preceding his medical studies. He was House Physician for Massachusetts General Hospital when he developed acute tuberculous pneumonia. After lysis of the acute stage he moved to Poncha Springs and Salida. A year later his disease seemed to be arrested, and he began practice in Colorado Springs.

He moved to Denver in 1883 and in short order built a huge practice, became Professor of Medicine at the University of Denver and the "best known and best regarded of the younger

internists" (J. N. Hall). Later he was Dean of DU's medical school for four years. His scores of published papers covered the whole gamut of internal medicine though many dealt with pulmonary diseases.

Another historian states that every patient was a devoted friend after his first visit to Dr. Fisk's office and that the doctor's charming manner and sincere love of all mankind "made friends in the thousands, and no known enemies."

Throughout his Denver years (1883-1902) his outward appearance was that of robust health, but his personal physicians knew better. He had very poor lung capacity (emphysema?), he fought diabetes insipidus for years (three uncles had diabetes mellitus), he broke ribs from sneezing, and seasonally he had all the symptoms of intractable hay fever with some asthma.

Worsening health forced his retirement in 1900 at the age of 44, fortunately with a financial competence that permitted extensive travel and a few more years of participation in his medical organizations. In 1902 Dr. Fisk served as President of the American Climatological Association, but he soon moved back to his native Massachusetts and was an invalid his last ten years of life.

John W. Collins, Denver; 20th CMS President, 1889-90
December 22, 1835—March 20, 1903
MD 1860, Tulane University

POOR SANITATION is wrecking our State: We must enact and enforce stricter laws to deliver pure water, and safe milk and meat and vegetables, to our homes and offices and institutions. We must remove the filth and pollution from our streets and provide for proper disposal of sewage. Contagious disease is increasing. The very existence of typhoid fever is a disgrace. Laws governing medical practice are inadequate. Quacks, charlatans and medical pretenders bring our profession into disrepute.

Greatly condensed, that was the principal theme of Dr. John Collins' Presidential address, closing his administration in 1890. Much of it might have been written today, 81 years later. Other parts of his philosophy would only intensify today's "generation gap." He violently opposed coeducation, and not just in colleges which then were rarely coeducational, but also in high schools and elementary schools. He even believed that boys and girls should be separated in kindergarten!

Another of his educational proposals became the style for elementary and some high schools in the mid-20th century – but for reasons other than his. He contended that the climbing of stairs was distinctly unhealthful for girls and women, and that female teachers as well as girl pupils, in fact all women, should avoid them. We wonder what Dr. Collins would think of today's feminine athletes and "Women's Lib" or even World War II's "Rosie the Riveter"!

He was born in Alabama, attended his State University, and studied medicine two years under a preceptor before entering Tulane University. He served throughout the Civil War as a surgeon, first with the Alabama cavalry, later with the Tennessee cavalry. Afterward he practiced five years in Clark County, Miss. and ten years in Jackson, Tenn., coming to Colorado Springs in 1880. He remained there two years, then sampled practice in Georgetown for a few months and finally settled in Denver. Beginning in 1886 he was Professor of Gynecology and Abdominal Surgery at the University of Denver for nine years.

His health began to slip in the late '90s, so for an easier life he became physician to the State Penitentiary at Canon City. He retired in 1900 and lived his remaining years at the home of a brother in Pueblo.

Jeremiah T. Eskridge, Denver; 21st CMS President, 1890-91
June 1, 1849—January 15, 1902
MD 1875, Jefferson Medical College

HIS PRESIDENTIAL Address shocked many CMS colleagues by advocating the medical use of hypnotism, as an anesthetic in selected cases and as an aid in treating some psychoneuroses. Dr. Eskridge even demonstrated its use with patients on the platform, but he deplored the use of hypnotism by entertainers, the partially trained, and medical quacks – in fact he argued against its use by any but specially trained physicians.

He was the favorite medicolegal witness of every Colorado judge, most lawyers, and every physician-litigant whose cause Dr. Eskridge could support. Contemporaries usually used superlatives in describing his talents, such as "the most polished speaker," "greatest scholar," "most erudite," and "the last word on any witness stand." On the day of his funeral, Denver courts adjourned in respect to his memory.

He was born on a farm in Delaware and was a boy prodigy. By age 15 he was teaching school. While attending a local college he studied medicine under a preceptor. After being graduated from medical school he stayed in Philadelphia, practicing and teaching psychiatry at Jefferson until he developed tuberculosis and moved to Colorado Springs.

There he recovered rapidly and soon was back in practice in the specialty he had already chosen. In 1888 he moved to Denver because he wanted to resume teaching. The University of Colorado welcomed him and appointed him Professor of Nervous and Mental Diseases. From 1892 to 1897 he also served as Dean of that medical school. By then he was considered one of the foremost neurologists in the nation. He wrote a large part of Peterson and Haines' "Medical Jurisprudence," and before he died at 53 his published papers on neurology alone numbered over 170.

The State Hospital in Pueblo was "in hot water" from 1898 to 1900 with mismanagement charges and countercharges flying back and forth. Dr. Eskridge was President of the "Board of Commissioners for the Insane" (State Lunacy Commission) and he stoutly defended the Superintendent, Dr. P. R. Thombs, who was finally cleared of any wrongdoing but resigned in disgust. Reluctantly, but feeling it his duty to the profession, Dr. Eskridge accepted appointment as superintendent but lived only two more years, succumbing to a cerebral hemorrhage.

William M. Strickler, Colorado Springs; 22nd CMS President, 1891-92
September 28, 1838—October 26, 1908
MD 1869, Medical College of Virginia

"IF THERE was anything going on that Dr. Strickler wasn't mixed up in, it was no good. And he was a great surgeon." The records seem to bear out that comment of a younger physician who knew him well.

He certainly was always "involved," in medical matters naturally, but also in fraternal work, politics, education and ranching – each as a major interest. He came to Manitou soon after obtaining his MD. Within a year he was County Superintendent of Schools, 1870 to 1874. He moved briefly to Colorado City, then to Colorado Springs, where he and Dr. Solly organized the El Paso County Medical Society with Dr. Strickler as its first President.

He also served several years as county physician. He held high offices in local and state Masonic orders. He was a Colorado Springs City Councilman and was President of the Council in 1884 and 1885. In 1888 he was elected Mayor, a one-year term, and this was repeated in 1893 and 1894.

Dr. Strickler bought land in the southern part of the county, developed it into a profitable sheep ranch, and he became a power in the state organizations of ranchers and wool growers. Even before holding city elective offices he argued incessantly for construction of a city-owned water plant. As Councilman and later Mayor, he led in establishing a modern water system for Colorado Springs, and persuaded the city to buy additional water rights toward future growth.

Despite all these activities, Dr. Strickler was a busy doctor, emphasizing the surgical treatment of tuberculosis. In his CMS Presidential Address, devoted to tuberculosis problems, he reported a number of cases he had successfully treated with a "new" surgical approach, now known as thoracoplasty.

He was known to his colleagues as a courtly Southern Gentleman, quite reserved and – strangely when one considers his political success – one who had very few intimate friends. "He was no back slapper; patients flocked to him, but he kept them at arm's length," an aging friend told us.

He was born in Shenandoah, Va., and had a year of college in Carlisle, Pa., and a year at the University of Virginia medical school when the Civil War started. He had served the Confederate Army four years as an Assistant Surgeon before starting the three-year course at the Medical College of Virginia.

William E. Wilson, Denver; 23rd CMS President, 1892-93
March 16, 1833—April 2, 1911
MD 1853, University of New York

JAMES Whitcomb Riley, the Hoosier poet then approaching the zenith of his career, had appeared in Denver on a lecture tour just before Dr. Wilson's term as CMS President ended, and Mr. Riley had ridiculed Civil War surgeons for supposedly having stayed in safe hospitals "'way behind the battle lines." So Dr. Wilson re-wrote much of his Presidential Address and in righteous wrath tore Riley's sarcastic presentation to bits, among other things quoting the Surgeon General's final report which showed that the mortality of wartime surgeons was "larger proportionately than that of any other staff corps." The good doctor had served five years as a Union Army Surgeon and had been shot at more than a few times. He also recalled that Riley, prior to his poetry career, had traveled extensively with a "patent medicine wagon."

Dr. Wilson had some criticism of colleagues, too. Attendance at that Annual Session was small, and he blamed this on the fact that too many doctors had chosen that very week to attend the World's Fair in Chicago.

He devoted several speeches to pleas for increasing the length and breadth of medical education. He called himself "under-educated" for medicine, even though he'd had two years of college, two under a preceptor, the full course at New York University and another full course leading to a second MD at the University of Nashville, Tenn. He was a constant student of medical advances throughout his life.

Although he was born and reared in Atlanta, Ga., where he also had his first college work and his preceptorship, his New York medical school and some pre-war practice in Illinois somehow turned him into an ardent and outspoken "Yankee." After the Civil War he again practiced in Illinois until he came to Denver in 1872. Here he was known as a dignified and urbane doctor, usually quiet spoken, and a fair-minded but strict Professor of Medicine at the University of Denver – and later at the Denver and Gross Medical College. He was Vice President of CMS twice before being elected President.

His interests were not limited to medical affairs. He was one of the organizers of the Central Savings Bank and its first Vice President. He was a long-time Trustee of both the Trinity Methodist Church and the University of Denver, and a frequent officer of the G.A.R.

Edmund J. A. Rogers, Denver; 24th CMS President, 1893-94
March 27, 1852—July 3, 1922
MD 1881, McGill University, Montreal

IF GHOSTS ever walk in Denver's beautiful Civic Center they surely include hosts of British and Canadian elite who, along with Denver lawyers, engineers, mountain climbing enthusiasts, musicians and social leaders, were entertained almost daily from the mid-1880s until that great house which held Dr. Rogers' family and office gave way for construction of the Denver Public Library – now the Water Commission building.

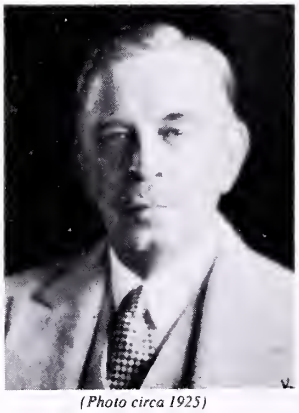
Dr. Rogers first came to Colorado in 1872 as a young Canadian civil engineer. He surveyed the town of Highlands, west of the Platte River and only slightly north of the then center of Denver. It was later annexed and is still erroneously nick-named "North Denver." He returned to Montreal for medical school and roomed in the home of Sir William Osler who was then teaching at McGill – they were already friends from boyhood school days. When Rogers came back to Denver as a doctor in 1883, after a brief period in London, he quickly became the leader of the city's British-Canadian colony, a considerable group for those days. He retained his Canadian citizenship until late in life. He was a highly successful surgeon and was Professor of Surgery at the University of Colorado for many years.

Dr. Rogers was a gracious and usually jolly host, but his more frequent attitude was serious, moody, and often melancholy. About 1905 he gave up surgery to pursue his growing belief that more diseases could be cured by psychology than by either drugs or the knife. From then on he was a controversial figure in the profession, although some of his later work was supported by the early psychiatrists.

This tall, powerfully built doctor seemed happiest when sharing his love of the outdoors with family and friends, teaching them to be skilled campers, safe hikers and mountain climbers, and practical conservationists. His teachings inspired his eldest son, James Grafton (later a famed lawyer, educator and diplomat), to found the Colorado Mountain Club in 1912, and likewise led another son, Edmund J., into a distinguished career in the National Park Service.

Dr. Rogers pleaded in his CMS Presidential Address for consolidation of Denver's three small medical schools: the privately owned Gross Medical College and those of the University of Denver and the University of Colorado. He caused creation of a committee which within a few years brought this about.

Hubert Work, Pueblo; 25th CMS President, 1894-95
July 3, 1860—December 14, 1942
MD 1885, University of Pennsylvania



(Photo circa 1925)

IT WAS IN national politics that he reached his zenith though he was always first and foremost a doctor. Dr. Work began in rural general practice, later was a pioneer psychiatrist and CMS President at 33. He was the first Speaker of the AMA House of Delegates, Colorado's only AMA President to date, served in the Cabinets of two U. S. Presidents, as campaign manager for a third, and just might have been President himself. His energetic dynamism matched his big athletic figure and distinguished bearing. But he loved medicine and was a studious, kindly, quiet doctor, modestly disparaging his national political stature.

He started practice in Greeley, soon moving to Fort Morgan. His friend Dr. J. N. Hall was at Sterling. Each applied for life insurance, each needed a physical, and these two were the only doctors in Northeast Colorado. So by freight trains they met at a cattle-loading siding and examined each other. Work's pulse was too high; Hall's too low. Work lay down on the cinders while Hall ran a half-mile up and down the track; then both examinations were perfect! Both survived into their 80s.

Dr. Work moved to Pueblo after special study in psychiatry and founded Woodcroft Sanitarium which he supervised until called to Washington as Postmaster General by President Harding in 1921. That same June he was about to deliver his AMA Presidential Address in Boston when a telegram told him of the disastrous Pueblo flood that killed 500 persons and wrecked part of his sanitarium. No one else on the platform knew what had happened until Dr. Work's duties of the day were finished.

Knowledgeable leaders have contended that had Dr. Work not refused to let his name be proposed in the famous "smoke-filled room" in Chicago, he instead of Harding could have been the compromise Republican candidate in 1920 and much history would read differently. When Albert B. Fall resigned as Secretary of the Interior in the Teapot Dome oil scandal, President Harding replaced him with Dr. Work; President Coolidge re-appointed him Secretary of the Interior, and as national Republican Chairman he managed Herbert Hoover's successful 1928 Presidential campaign.

Those jobs completed, Dr. Work retired near Englewood to the life of a country gentleman and "elder statesman," but he never ceased his medical reading and seldom missed a CMS Session.

Isaac B. Perkins, Denver; 26th CMS President, 1895-96
August 8, 1859—November 7, 1929
MD 1887, Denver Medical College

(Photo circa 1920)

THE WEEDS grew so high on Grasshopper Hill that children played hide-and-seek on that Denver landmark each summer, and sometimes the youngest ones would get temporarily lost.

Dr. I. B. Perkins, probably the busiest surgeon in town in the World War I period, knew that Denver needed more hospital beds and he wanted a fine new hospital, instead of weeds, to occupy that vacant six-square-block hummock. He made his dream come true, and Grasshopper Hill now underlies the Presbyterian Medical Center as his monument.

Dr. Perkins was a loyal member and frequent Chief of Staff of St. Luke's Hospital, but he insisted that Denver even then was growing so fast that the existing church-sponsored hospitals could not expand enough to keep pace. He was a devout Presbyterian so he took his dream before the synod and made trips to see Presbyterian leaders and study hospitals in eastern cities. He promoted and promoted, and when church leaders rallied to his cause the initial funds were raised and the cornerstone was laid June 26, 1921. He was on the first Board of Managers and was appointed the first Chief of Staff, but failing health kept him from filling the latter position.

"I. B.," as he was familiarly called by most of Denver, was a distinguished looking man. His was an outgoing personality, affable, genial, uncritical. He had that too-rare quality of always finding the good to admire in others, overlooking their obvious faults. In the operating room he was a quick and dexterous surgeon, and imperturbable. He was of the old school, charging fees strictly according to patients' abilities to pay. If the patient was a known millionaire, his bill for a simple appendectomy might be $5,000; a young working girl might be charged $10 for the same service; if the patient was really hard up, I. B. would charge nothing and would pay his patient's hospital bill, too.

Four Perkins brothers were physicians, I. B. and two others leaving their native Missouri to settle in Denver. By middle age I. B. Perkins' name was also important on Denver's 17th Street as he was in banking, mining, investment companies and building construction. But late in life he suffered several financial disasters and the 1929 stock market crash left him almost penniless just before he died.

Robert Levy, Denver; 27th CMS President, 1896-97
May 30, 1864—July 1, 1945
MD 1884, Bellevue Medical College, N. Y.

(Photo circa 1930)

PRECOCIOUS young Levy from Hamilton, Ontario, led his classes in Canadian and New York schools, had a bachelor's degree at 17, his MD when barely 20, and immediately chose Denver as his future home. He was just 32 when installed as CMS President, the youngest in CMS history to hold that office. (Some historians erroneously credited Hubert Work with that distinction.)

Dr. Levy was proud of his race and religion, but humble about his international stature in otolaryngology and the dozens of honors accorded him. Colleagues regarded him as the Rocky Mountain West's "final authority" in his specialty, but his advice and opinions were always soft-spoken with respectful modesty.

Among friends he was full of ribald Jewish jokes, often with himself as the butt. At a 1931 AMA meeting a Colorado Delegate saw his friend Dr. Levy reading in the lounge of a swank hotel that was known to discriminate against Jews, and asked him where he was staying. "Right here, Jack," Dr. Levy answered, "I covered my nose with one hand while I was registering," he grinned – he *did* have a most prominent nose.

He had served on the faculty and as Secretary of the old Gross, later the Denver and Gross medical college; when these were merged with CU he continued many years as Professor. He was in national demand as a guest speaker and lecturer, he headed medical societies at all levels, and for years he chaired the Medical Advisory Committee of the National Jewish Hospital. He was "president of almost everything," local, state and national, in his specialty, and he served with distinction as a Major in World War I.

Dr. Levy was a special protector of the young and inexperienced. He once drew a harried CMS Secretary aside at the latter's first Annual Session and said "I have been observing your problems. I was Secretary of this Society before you were born and the same things happened then – doctors and exhibitors pulling at my sleeves, asking foolish questions, making complaints, wanting the impossible, and with a crowd of them around me one elderly doctor with a long grey beard pushed through and grabbed me, yelling 'Levy, Levy, where's the urinal?' I'd had all I could take so I said '– – – – on me, Doctor, I'm the Secretary.' Young man, you should use that idea some day."

Thank you, Dr. Levy!

Lewis E. Lemen, Denver; 28th CMS President, 1897-98
April 1, 1849—February 17, 1919
MD 1871, St. Louis Medical College

GEORGETOWN'S Cornish miners had enforced a "rule" that each new doctor or lawyer in town must set up the drinks for all "Cousin Jacks," so when young Dr. Lemen entered the saloon for the first time a mine foreman ordered the door locked and insolently explained their rule. "Is that so!" Dr. Lemen said, "I'll treat a friend when I want to, but I'll set up no drinks under compulsion. Unlock that door." The foreman looked over the doctor's rugged six-foot-three-by-225-pound frame for a moment, then meekly complied. Dr. Lemen walked out, unmolested, and for the 12 years he practiced in Georgetown he was the miners' favorite physician.

He moved down to Denver in 1884 and was again an instant success. He became surgeon for Denver's three large smelters, for the Union Pacific, for the old Denver cable-car company, and consulting surgeon for other railroads. He also held Professorships of Clinical Surgery at both Denver and Colorado Universities, and the chair of Fractures and Dislocations at the Gross Medical College.

Just before he was elected CMS President in 1897, he and a former President, Dr. J. W. Graham, were Colorado's AMA Delegates. CMS had invited the AMA to meet in Denver in 1898 and the delegates from most states had written to him, promising their support. In those days the choice was made by a committee of one delegate from each state, Dr. Lemen representing CMS. But when the committee met, only Columbus, Ohio, was nominated formally by those in charge. Maps showing Columbus' proximity to centers of population were displayed and supportive speeches by many delegates indicated that Denver was forgotten. When Dr. Lemen finally got the floor he said he was "proud to come from a city that doesn't need a map to show where it is." He then repeated the old story of the merchant who, having been turned down for a bank loan after all the bank's officers had separately promised they would approve it, told the board of directors of the bank that "individually you are fine men but collectively you are a bunch of – – –

J. N. Hall, Denver; 30th CMS President, 1899-1900
October 11, 1859—December 17, 1939
MD 1882, Harvard Medical School

(1933 photo)

IN 1946 DR. A. J. Markley reviewed CMS's first 75 Annual Sessions and wrote that "There has probably been no member of this Society more widely or favorably known than Dr. Hall." Other contemporaries called Dr. Hall "the William Osler of the West"; they knew both men well and noted the resemblance of their personalities, philosophies and skills. Certainly Josiah Newhall Hall was for 40 years Colorado's leading diagnostician and consultant.

His interests were not limited to medicine. His general knowledge amazed experts in almost every field of science, nature, history and education. He was a master in the laboratory, but was at his greatest when examining patients with his finely tuned five senses, at the same time gleaning every grain of personal and family history toward his constant goal – accurate diagnosis.

Banquet audiences loved his stories of early days in Colorado; his speech was quick, close cropped and full of witty anecdotes. He also used his story-telling talent to calm a patient or to illustrate his findings to the doctor who had called him in consultation. He wrote for many medical journals and authored a two-volume work on "Borderline Diseases." He wrote also on hunting, fishing, and on Western history, including "Tales of Pioneer Practice" and "Reminiscences of Early Presidents of the Colorado State Medical Society." These last two collectors' items provide some otherwise unrecorded glimpses into the lives of 23 of the earliest CMS Presidents.

Dr. Hall was born in North Chelsea, Massachusetts. After a Boston City Hospital internship he came to Denver briefly in 1883, then practiced in Sterling until 1892 when he re-settled permanently in Denver. Within a year he held full professorships at both the CU and Gross medical colleges and was organizing teaching clinics in several Denver hospitals. He quickly won national recognition. In 1932 he concluded ten years on the AMA's Judicial Council, the last five as its Chairman, and quietly but firmly refused a proffered nomination as AMA President, saying the AMA needed a younger man.

One day he visited the CMS office and presented an autographed photo of himself to the Executive Secretary. "I dropped in mostly to remind you that it was 25 years ago today I saw you in consultation; you were nine and you had a heart complication after scarlet fever. We're glad you're still here," Dr. Hall grinned. He never destroyed a patient's record.

William P. Munn, Denver; 31st CMS President, 1900-01
December 10, 1864—March 12, 1903
MD 1886, University of Michigan

DENVER'S City Council tried to fire this Health Commissioner when he refused to resign or to appoint ward heelers as his deputies, but Council found it couldn't, so it cut the Health Department's appropriations and withheld pay from all department employees for six months. Dr. Munn and his loyal staff kept right on prosecuting every breach of the health laws, mostly by corporations, restaurants, business building owners and quarantine violators. He sued the Denver Union Water Co. when it refused to install additional filter beds and was letting impure raw water flow through Denver mains. He lost that suit on a technicality but planned immediate re-filing; the water company knew it was licked and hurriedly built a new filter plant.

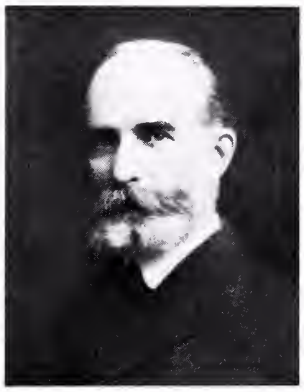
My, how politicians and some corporations hated Dr. Munn! Even some doctors winced at the press coverage of his public statements and speeches, but an overwhelming majority of his colleagues cheered this young man's constant fight to prevent contagion. Some historians consider that he was the West's first truly great public health officer.

Dr. Munn survived only 13 years after moving to Denver in 1890 following four years of practice in his native Pittsburgh – but what a 13 years! In 1891 Dr. Henry K. Steele appointed him a Deputy Health Commissioner. He succeeded Steele in 1895. In the meantime he had begun a six-year term on the State Board of Health and seven years of professorship at the Gross Medical College in histology, pathology and genito-urology. He was the first Denver doctor to use diphtheria antitoxin; it was expensive then, but he personally bought quantities of it and gave it freely to any who sought his help.

He was never strong physically, but on his feet and speaking he seldom failed to win over even a skeptical audience, although his biting sarcasm and epigrammatic wit enraged those who disputed his public health policies. Dr. Henry Sewall wrote of Munn's "tremendous forensic ability and his trenchant pen . . . a friend to prize and a foe to fear."

Medical societies mourned his untimely death at 38 with resolutions calling him a "public servant in the truest sense," and said that "the people of Denver will never know, but we know, how hard he worked. . . . In spite of corporations, popular prejudice, insufficient funds, lukewarm officials, he waged war against dirt and disease."

Richard W. Corwin, Pueblo; 32nd CMS President, 1901-02
May 24, 1852—June 19, 1929
MD 1878, University of Michigan



HE WANTED his operating room *really* aseptic, therefore he had its walls, and its ceiling, floor and only door lined and sealed airtight with sheet lead. Live steam was piped into the room before each operation, sterilized cool air piped in after the steam bath. But how the surgeon, assistants and patient did sweat as that metallic room held the heat! Its north wall, of reinforced plate glass, provided the light.

Dr. Corwin, Chief Surgeon of the CF&I Co., supervised every detail as Minnequa Hospital was built in 1901. He had toured the U. S. and Europe to study industrial hospitals, but many innovations were his own. The two-story building had ramps, no stairs or elevator, and it was built to be nearly sound-proof. There was little white paint; he believed soft colors and fancy curtains would soothe patients. But he had upturned spikes embedded in the concrete porch railings so no one could sit on them. He was a world traveler, an archeologist, an ornithologist, an omnivorous collector. He lined hospital corridors with museum cases of his curios which included shrunken heads from Africa and Fiji (also soothing to patients?).

Yes, he was a character, but also a genius. He earned his way to a Cornell BA as an expert taxidermist. He paid for his medical school as curator of the University of Michigan's museum. He rowed on Cornell's varsity crew and was a lifelong athlete. At age 75 he grabbed the top bar across the foot of a patient's hospital bed and leaped into a full hand stand, just to prove to the patient that he "wasn't getting too old."

As an educator Dr. Corwin was Professor of Clinical Surgery at CU, served on the State Normal School Board, the Board of Agriculture, and 40 consecutive years on Pueblo's District 20 School Board, a national record. He retired from the Colorado National Guard as Surgeon General in 1904, but went to Europe in World War 1 with the Rockefeller Institute and was decorated by the Queen of Belgium for his part in developing the Carrell-Dakin treatment. He was a Past President of the Association of Railway Surgeons, a 33rd-degree Mason and a Past Grand Commander of the Knights Templar. He was a prohibitionist and a violent opponent of tobacco in all forms. No one dared smoke in Minnequa Hospital.

When he died and the hospital was renamed for him, his many collections amounting to a fine private museum were donated to colleges. He had never married.

William W. Grant, Denver; 33rd CMS President, 1902-03
November 15, 1846—January 8, 1934
MD 1868, Long Island College Hospital

(Photo circa 1915)

DR. GRANT had many claims to fame, but except with close friends he never talked about them. Historians really have to dig to learn about his distinguished career. After internship he practiced for 12 years in Davenport, Iowa. There he performed what many credited as the nation's first appendectomy, January 4, 1885. He also originated a standard operation for cancer of the lip that still bears his name, and he did the first complete operation for facial paralysis with anastomosis of facial and accessory spinal nerves.

He had been President of his county medical society and President of the Iowa and Illinois Central District Medical Societies. Before moving to Denver in 1889 he had spent two years in Europe for postgraduate study.

His CMS Presidential year marked two milestones for this Society. He led a complete revision of the Constitution and By-Laws, creating the House of Delegates as the Society's ultimate governing body. Dr. Grant had been on the AMA Board of Trustees three years at that time, and had co-authored the similar reorganization of the AMA, which created its national House of Delegates just a month before the CMS action. He continued on the AMA Board until 1914.

As CMS President Dr. Grant also named and "rode herd on" the committee which founded "Colorado Medicine" (now the Rocky Mountain Medical Journal) in 1903, and it was he who chose Dr. Edward Jackson as the first editor.

Dr. Grant was born and reared in Alabama and served the Confederacy as a young soldier in the Civil War. He was a U. S. Army medical officer in the war with Spain. When we entered World War I he volunteered again but was turned down – he was 70! Later it developed that Fort Logan, Colorado, desperately needed a top-notch Post Surgeon. Then-Captain John W. Amesse wrote to Surgeon General Gorgas, his old friend of Spanish-American War days, suggesting Grant. General Gorgas waived Grant's age and commissioned him a Major for two more years of brilliant service. When well into his 80s Dr. Grant still seemed physically fit, vigorous, and straight as a ramrod.

A list of his high offices including presidencies of medical, surgical, military, and library associations would have filled this page.

Thomas H. Hawkins, Denver; 34th CMS President, 1903-04
July 12, 1849—July 21, 1926
MD 1873, Bellevue Hospital Medical College, New York

DR. HAWKINS was Colorado's first medical journal editor and publisher. He came here from New York in 1879 for health reasons and with an enviable record of teaching and writing in the East, and after two years in Denver he founded the old Denver Medical Times. For its first six monthly issues he titled it the "Rocky Mountain Medical Times," but then adopted the Denver name permanently, although subsequent issues frequently included sections called "Utah Medical Journal" and "Nevada Medical Journal." His journal thus was the first multiple-state medical periodical in this region.

As long as he edited and published the Denver Medical Times it was a success, but when he left Denver the circulation began to slip. It was succeeded in 1933 by the Western Medical Times, which ceased publication in 1953.

Our records indicate that Dr. Hawkins was the only CMS President actually born in a log cabin. That event took place in Anderson County, Kentucky, and he claimed a British pirate in his ancestry. His premedical education was at the University of Louisville. After a two-year resi-

dency at New York's Orthopedic Hospital he practiced several years in New York City and taught comparative anatomy at Bellevue. Later he founded the veterinary college at DePauw University, Indiana, and was its first Professor of Physiology. He did postgraduate work on the surgery of women's diseases, then came to Denver to become perhaps our state's first gynecologist.

Dr. Hawkins was one of the founders of Denver University's medical school, of the Gross Medical College, and of Saint Anthony hospital. Contemporaries described him as a fine teacher – clear, concise and understandable, using no excess verbiage, yet carefully explaining the most difficult problems and terminology in simple terms. His CMS Presidential Address figuratively "raised the roof" when he advocated castration of all perverts and convicted rapists as well as certain other criminals. This brought down upon him considerable adverse criticism, in the face of which contemporaries described him as "long suffering."

He left Denver in 1911 for the East Coast. Then three more years of postgraduate work, in Paris, were followed by practice in California until he retired, nearing 75, to spend his last years in Plainfield, N. J., close to his old New York haunts.

Frank Finney, La Junta; 35th CMS President, 1904-05
May 13, 1858—March 23, 1919
MD 1882, Georgetown University

THE FIRST CMS President from Southeastern Colorado was not only a capable surgeon and hospital administrator, but a leading businessman and banker. Dr. Finney was President of the La Junta Building and Loan Association, Vice President of the First National Bank of La Junta, and Vice President of La Junta's Colorado Savings and Trust Co. He held all these positions for years and friends credited his unfailing business acumen even more than his medical success with making him a wealthy man.

He was born into a family of modest circumstances in Martinsburg, Ohio, and the family moved to Lawrence, Kansas, when he was a child. There he earned his way through high school, through two years at the University of Kansas and one year at New York's College of Physicians and Surgeons, and finally through Georgetown University medical school.

His first practice was for the U. S. Indian Service in Indian Territory, now Oklahoma. After two years of this he took a two-year internship at New York's Bellevue Hospital, then started private practice back home in Lawrence. In 1886 he accepted appointment by the Santa Fe Railroad as surgeon for its small Las Vegas, N. M., hospital. One year later the Santa Fe promoted him to Chief Surgeon of its Western Division and director of its principal hospital, at La Junta.

Frank Finney was a completely charming personality. Professional men and businessmen alike – and women and children too – respected and admired him, and became his loyal friends. He was a "born organizer," in medicine, in business, and in his Methodist Church. He personally organized and guided the Otero County Medical Society which, though small in membership, became a power in state medical affairs. Before he was elected CMS President, he fought and won a battle to better our state medical journal's finances by including ethical advertising.

Dr. Finney was a constant student of pharmacology as well as surgery, and his Presidential Address called for laws to require full disclosure of formulae on the labels of proprietary medicines, a goal he did not live to see achieved. He died at the peak of his career from a massive coronary attack, and was said to have had the largest experience in hernias and abdominal surgery of any Colorado surgeon outside of Denver.

Horace G. Wetherill, Denver; 36th CMS President, 1905-06
December 18, 1856—January 24, 1941
MD 1878, University of Pennsylvania

(Photo circa 1933)

AROUND THE turn of the century a handful of nationally prominent surgeons advocated an extra four or five years of special training following medical school graduation before a man would be permitted to perform major surgery. Dr. Wetherill was one of that group and he made this the theme of his CMS Presidential Address. He boldly called "dangerous and deplorable" the average surgery then being done in Denver hospitals. His speech angered some colleagues but some others, better trained, cheered. Dr. Wetherill lived to applaud standards set by the American Board of Surgery, founded in 1937.

He had first practiced with his doctor-father in the town where he had been born: Lambertville, N. J. Later he practiced by himself in Trenton, but he contracted tuberculosis and moved to Denver in 1895. Here, he made a rapid recovery. He was soon Professor of Gynecology and Abdominal Surgery at the Denver Medical School, then at the combined Denver and Gross Schools, and he continued in the same chair when these schools merged with the University of Colorado in 1911. In 1910 he had headed the AMA's surgical section. He was one of the founders of the American College of Surgeons, and was its Governor in Colorado for some years.

Dr. Wetherill retired in 1919 (at 63) and never practiced again, but in between many foreign trips his keen interest and his activity in medical organizations were always evident. In 1925 he established a new home in Monterey, Calif., and there he founded the Pacific Coast Surgical Association, modeled after the Western Surgical Association which had been one of his prime interests. He was a founder and President of the Monterey Public Library, and though he never had children of his own he was President of the Monterey PTA for years and loved it!

World travel and photography claimed most of his time after retirement. He was an expert amateur photographer, made his own lantern slides after each glamorous trip, and gave travelogues to friends and interested groups all over the West.

Dr. Wetherill spent most of his last 15 years in California, but still loved Colorado and until he was 83 he frequently drove his own car between Monterey and Denver to visit old friends and CMS meetings.

Heman R. Bull, Grand Junction; 37th CMS President, 1906-07
October 28, 1862—June 21, 1934
MD 1887, Jefferson Medical College

THE STORY of his life would make Horatio Alger seem a piker! Grand Junction was "born" in 1882 when the D&RG narrow-gauge reached the junction of the Grand and Gunnison rivers, and when young Dr. Bull got off that train just five years later he possessed only $3, the clothes he wore, and a few instruments and medicines he had carried from Philadelphia. He rented a small room on credit. He used most of the $3 to buy one chair and a table, and he slept on the bare table until enough cash came in to buy a bed in addition to daily food.

He got a job carrying the payroll to the D&RG's continuing construction camp and treating the camp illnesses and injuries. Train and payroll robberies were common, but Dr. Bull and his trusty six-shooter were never challenged. Later he laughlingly told about his best financial practice being in the red-light district, where instant cash was always paid.

His first operation was performed outdoors in a cow camp on a make-shift table consisting of two saw horses and a wagon gate. He amputated a cowboy's leg that was already gangrenous

from a compound fracture. Other cowboys assisted, sterilizing instruments in a washtub over a campfire and giving the anesthetic. The patient recovered. Soon afterward he removed a sixth toe from an Indian who had been unable to wear shoes. A dozen Indians insisted on observing, and thereafter Dr. Bull was the favorite doctor for all Western Slope Indians.

He took some months off for postgraduate courses while building a large general and Ob practice (he recorded over 3,000 deliveries), and as the first CMS member west of Leadville he organized the Mesa County Medical Society in 1903. In 1906 he became the Slope's first CMS President and a year later conducted our first meeting west of the Divide, in Glenwood Springs. It was Dr. Bull who prompted the Sisters of Charity to build Grand Junction's first hospital, St. Mary's. He served many years on the local school board and ten years on the State Board of Health.

Dr. Bull was born in Warwick, N. Y., reared in Amity, Mo., and earned his way to a BS at Washburn University, Topeka, heading his class as valedictorian. He had a fine tenor voice and once sang "The Mikado" in Grand Junction's opera house.

Herbert B. Whitney, Denver; 38th CMS President, 1907-08
November 24, 1856—July 3, 1948
MD 1882, Harvard Medical School

(Photo circa 1935)

"IT IS TIME to protest the enormous surgical fees . . . as much as $5,000 . . . frequently extorted from the rich . . . even fees charged those of moderate means . . . a disgrace. . . ." So spoke Dr. Whitney in perhaps the most bitter denunciation ever delivered as a CMS Presidential Address. He castigated fee splitting, then common, and he censured family doctors and internists who accepted payments for referrals equally with the surgeons who tendered them. He proposed a "corrective substitute," a state-wide regulation, to be publicized, providing 15% of the surgical fee (but surgical fees to be lower) to the referring doctor who must then share in the pre- and postoperative care.

He also bemoaned the inadequate incomes of family doctors, reproached them for failing to charge "sensible" fees for their services, and he berated most specialists for what he felt was their deliberate downgrading of general practitioners. A number of his still living colleagues have called Dr. Whitney "a very forceful writer and speaker." Read his Presidential Address and you will agree fully!

Yet in his usual professional and social contacts he was known as a consummate gentleman, suave, smiling, soft-spoken – until something aroused his ire.

While President he worked hard for more education of the laity, not only in hygiene and public health, but in matters of personal health, in recognition of disease symptoms and signs, and in the care of the sick. He urged the profession to be more frank and to abandon most of its secrecies. He held, for instance, that except when the knowledge would endanger the patient or lead to misuse, patient and family should be told the contents and probable effect of prescriptions.

Dr. Whitney was from Massachusetts, had a Harvard BS before entering medical school, an 18-month internship and two years of postgraduate study in Europe. He started practice in Boston but a diagnosis of tuberculosis sent him to Colorado. He recovered at Salida and moved to Denver in 1887. He became Professor of Children's Diseases at CU and later Professor of Medicine at the Denver and Gross school when CU moved its medical department to Boulder. He retired a few years before his death at a ripe 92.

Peter J. McHugh, Fort Collins; 39th CMS President, 1908-09
September 17, 1863—April 5, 1939
MD 1888, Detroit College of Medicine

"AS IRISH as Paddy's pig!"

Take a strong physique with coal black hair above a ruddy face, a happy smile and a scornful frown, quickness to fight or to resent a wrong. Add the next day's apology or forgiveness, penny pinching and dollar generosity, witty quips, love of hard work including manual labor. Stir together with all the proverbial descriptions of America's early Irish immigrants (which his parents were), let rise through a struggling youth, bake four years in medical school, season with plenty of post-graduate work, and you have Dr. Peter McHugh.

The future Fort Collins doctor (and Mayor, no less) was born in Essex, Ontario, where his father served many years as sheriff after coming from Ireland. Young Peter clerked in the Post Office for six years and taught school for two more, earning his own way through high school, college and medical school, often at almost back-breaking "common labor." After an 18-month internship he chose Fort Collins as the place he wanted to live and practice. He soon married a young lady who was one of the first white babies born in Colorado's Larimer County – perhaps the very first. Success in practice came fast enough that Dr. McHugh could afford to take two years off for postgraduate work in New York City in 1897 and 1898, and later, another year in Vienna.

His interests were not confined to medicine and surgery. He was active in the business and social life of Fort Collins and, as indicated by his term as Mayor, in local politics. He was also active in the local Catholic organizations and was a devout communicant. He served six years on the State Board of Medical Examiners and "He never stood for any funny business on that Board, either," one old colleague said.

As a Past President and still a member of the House of Delegates, he argued long and loud against the "scandalous" idea some were proposing – the hiring of a non-physician as a full-time secretary for CMS. He was furious when the proposal was adopted in 1928. The first time the new secretary was scheduled to attend a Larimer County Medical Society meeting Dr. McHugh refused to attend; the next time he sought out the young man, apologized profusely, and asked "Is there any way an old Past President can help?"

In his last years, needing almost constant medical attention, Dr. McHugh would "fire" his personal physician in Irish anger almost weekly, always "re-hiring" him with humility a day or two later. He was one of a kind.

Leonard Freeman, Denver; 40th CMS President, 1909-10
December 16, 1860—December 27, 1955
MD 1886, Medical College of Ohio

(Photo circa 1935)

SEVERAL doctors warned the very young new editor about Leonard Freeman. They admitted he was the No. 1 surgeon of Colorado but they called him dogmatic, an egotistical dictator, deeply feared by all patients and colleagues. Never cross him, they said.

But the editor did not know him even by sight. One day an elderly but tall and commanding figure strode into the Journal office, tossing some proofs on the receptionist's desk with stern demands about them. "We'll do our very best, Doctor," she said. "That's not enough, G-- D--- it; this has to be perfect," the visitor stormed. The editor, young enough to be the doctor's grandson, came out to the reception room saying "Sir, I don't know who you are, but no one may swear at my secretary."

The big man looked the editor up and down, then bowed. "Young man, you are absolutely right and I'm ashamed of my manners," he said. "I am Dr. Freeman, and my sincere apologies

to you both – young lady, your best will be fine with me." Underneath that sometimes explosive criticism lay equally instant admission of his own errors plus a deep sense of fair play.

Dr. Freeman came to Denver in 1894 from his native Cincinnati where he had already achieved fame in pathology and as Professor of Surgery at the Women's Medical College. He soon held that chair at Denver's Gross Medical College, then at the merged Denver and Gross College, and finally, when they both merged with the University of Colorado, he headed the department for the rest of his life. He headed many surgical organizations as well as CMS within those years. "Tough" he was, sometimes scaring students and interns out of their wits during hospital rounds, but he was universally respected. He was both admired and loved by those he taught and those who experienced his masterful surgical judgment.

Dr. Freeman always defended the young. One day he and the then current CMS President were honor guests at a Wyoming Annual Session, and just before the first morning meeting opened the CMS President had ordered a young doctor to trade hotel rooms with him because his bed was too hard. Dr. Freeman sneaked into the President's room and diagnosed the problem – the President had shoved his sizeable steamer trunk under his own bed. Dr. Freeman shushed observers until time for his paper, then convulsed the audience with the full details while a blushing CMS President left the room to move his trunk.

Will H. Swan, Colorado Springs; 41st CMS President, 1910-11
November 20, 1867—September 5, 1932
MD 1891, Harvard Medical School

STRANGE as it may seem, old friends agree that Dr. Swan, paradoxically, was both "an ultra-conservative New England type who kept everyone at arm's length" and a doctor who was "deeply loved by priests, professors, and prostitutes." Steeped he was in the aloof, reserved old New England tradition – some even called him "stuffy" – but he was also a delightful dinner companion, so well read that he was a stimulating conversationalist on almost any subject.

He was born and reared in New Hampshire. After an 18-month internship at Boston City Hospital he took two more postgraduate years at Harvard while starting private practice. He was well established in Beverly, Mass., when his wife's failing health caused their 1899 move to Colorado Springs. Like most other Colorado Springs internists, his practice was largely with tuberculous patients. He was active in medical society work from the very start.

As an expert horseman he rode weekly or oftener. He also liked to climb Colorado's high mountains and he was a husky physical specimen until his last few years. He traced this to a hardy ancestry – he had come from a long line of New England seafarers.

As CMS President he furthered the programs of his immediate predecessors toward more public education in medical affairs, and in the Presidential Address closing his administration he vowed that as soon as the general public could be sufficiently educated as to medical facts the profession would have no trouble obtaining sound medical and public health legislation – the public would demand it.

Dr. Swan possessed to near perfection that talent for so "filing" names and their faces in the same memory cell that they would be instantly available on call. Introduced to a total stranger, he would call him or her by name the next time they met, even if many years had passed. He sometimes sharply criticized friends and other doctors who either could not or would not train themselves to do the same.

He was long the personal physician of Gen. William J. Palmer, wealthy founder of Colorado Springs. Dr. Swan was an internist, but when the aging general broke three cervical vertebrae in a fall from a horse, he would have no other doctor except as consultant to Will Swan.

Walter A. Jayne, Denver; 42nd CMS President, 1911-12
December 4, 1853—August 29, 1929
MD 1875, Columbia University

HE WAS versatile, energetic, a bibliophile, and many called him "stubborn as a mule." Tenacious he certainly was when anything threatened his pet goal: a fine medical library. It was Dr. Jayne who guided, prodded and protected the Denver Medical Society's Library and its predecessors for thirty years beginning in the mid-1890s.

But that was not all. He read every good book on medical and medically related science history that he could find, then condensed those histories into fascinating brief papers that found wide publication. He fostered innovations in medical societies, such as the Reference Committee system in the CMS House of Delegates. He was Professor of Gynecology at one or another of Denver's medical colleges from 1895 to 1919. He wrote not only on history and on gynecology, but on the effects of high altitude in a multitude of diseases. And at 64 he was commissioned a Lieut. Colonel and had a distinguished Army career through World War I.

Like many others, he had come to Colorado for health reasons. He recuperated in Georgetown, moving to Denver about 1891. Soon the old Colorado Medical Library Association, the profession's first library venture here, began a lingering death from lack of support. Try as he did, Dr. Jayne could not "cure" it, so he organized the "Denver Academy of Medicine," like the academies of large eastern cities, and started a new library. In 1907 it acquired the books and assets of the older association, which disbanded. The Denver Medical Society had also started a small library. Inter-society jealousies developed, though most Academy members also belonged to the county society. Dr. Jayne then led an experimental merger of the two libraries, and after three years the merger of not only the libraries but the two organizations was made permanent.

Dr. Jayne made several trips east to study big libraries and bring back ideas for improvement. He solicited financial support from the laity as well as from doctors. Many physicians helped with time, effort and money, but Dr. Jayne was "Mr. Library." In 1898 he founded the American Medical Library Association at the AMA's Denver meeting.

He also pleaded frequently for CMS direct financial support of medical research, but the House of Delegates always turned him down.

John A. Black, Pueblo; 43rd CMS President, 1912-13
October 27, 1858—April 5, 1922
MD 1882, Columbian University, District of Columbia

DR. JOHN Black had two pet hates, and for years whenever he made a speech he "took off" on one or the other or both. His No. 1 hate was the lack of venereal disease control and the public secrecy about venereal disease; to say that he always grew vitriolic about it is really an understatement. His No. 2 rage was against the Colorado Medical Society itself – he openly accused CMS of "being run by a closed corporation of cronies" and of doing nothing to reduce the incidence of VD.

After years of his many private and some public blasts at the officers and committees of CMS (who were probably doing the best they could), the House of Delegates said in effect: All right then; you accept the presidency and see if you and your friends can do better. A year later Dr. Black had learned to his distress that he and all who rallied to help him had been equally unable to get desired laws enacted by the legislature or by city administrations in Colorado.

But he never really gave up. He closed his CMS administration with a Presidential Address that blistered legislators, city councils, local and state health departments, sanitation bureaus and departments of vital statistics. He had fought for compulsory reporting and registration of all venereal disease and contacts. He had fought for laws to require confinement and enforced treatment, for bringing the names of syphilis and gonorrhea into the public press with statistics as to their prevalence. He publicly damned "those so-called best classes" who "sow their wild oats and then infect their innocent wives." He claimed that the nation's incidence of syphilis, especially, was at its "worst yet" in the early 1900s, causing a "terrific proportion of miscarriages, spontaneous abortions, still-births, and defectives who live."

Dr. Black had been graduated from business college, then had studied pharmacy, and as a pharmacist earned his way through medical school at the university which Congress in 1904 renamed George Washington University. His first practice was in Pueblo where he served one term as coroner and where for most of his professional life he specialized in industrial surgery.

Oscar M. Gilbert, Boulder; 44th CMS President, 1913-14
February 12, 1873—October 18, 1944
MD 1898, Barnes Medical College

(Photo circa 1932)

DR. GILBERT predicted Medicare and Medicaid 55 years ago (though he didn't use those titles) "if our profession does not right itself." He also advocated group practice and closed panels, and he called for a more powerful State Health Department that would include the state's many medically-related licensing functions. That CMS Presidential Address of his was a real shocker in 1914.

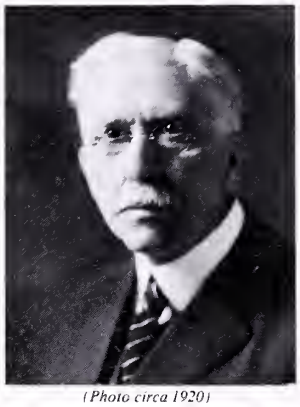
He had spent a postgraduate year in London in 1912 and had watched the inaugural of England's governmental medical care. He diagnosed its cause as "the deadly germ of avarice" that had "infected" British doctors, and he warned his American colleagues to defeat that "germ" and stop "charging exorbitant fees" or surely face " state practice of medicine" here, to begin with the care of the elderly and the near-indigent.

Even in small towns, he said, doctors should unite in group practices, developing a clinic type of cooperation and cross-referrals either with or without formal partnerships. "This would demand more magnanimity of spirit than is current," he said, and "reciprocation in referrals should not be the prime consideration, only the fitness of each man to best handle each case." He cited the Mayo Clinic, already famous but in a small town then only half the size of his own Boulder. He assured his listeners that salaried doctors in closed groups he had observed were "just as dedicated and happy" as the "independents."

Dr. Gilbert proposed that CMS ask the legislature to create a new kind of State Health Department, with actual sub-legislative powers. He said it should possess not only the usual Health Department functions, but should control the licensing and discipline of physicians, dentists, nurses, veterinarians, pharmacists, sanitarians, barbers and still others. He felt it should create and control a single licensing board for all these practitioners, examining each applicant in "appropriate sciences basic to all these callings." Some ten years later, Wisconsin enacted the first Basic Science Law, embodying part of his concept.

A native Missourian, Dr. Gilbert remained in St. Louis for two years after medical graduation, teaching anatomy at Barnes before settling in Boulder as an internist in 1901. He became Professor of Medicine at CU in 1913, and served through World War I as a Medical Corps Captain.

George B. Packard, Denver; 45th CMS President, 1914-15
May 9, 1852—February 23, 1928
MD 1874, University of Vermont


(Photo circa 1920)

HE WAS Colorado's first orthopedist, and he was aptly called the "father of The Denver Children's Hospital."

Reared on a Vermont dairy farm, he had made up his mind to pursue orthopedics before he finished medical school, so he did extensive postgraduate study in New York City before starting any practice. His first home as a doctor was Hartford, Conn., where he was a strong leader and in 1882 was a founding member of the American Orthopedic Association.

But tuberculosis brought him to Colorado in 1889. He recuperated in Green Mountain Falls and a year later settled in Denver. He was instantly welcomed. An orthopedist was badly needed by the growing young city, which soon fell in love with this doctor whose warmth of personality equalled his surgical skill and his seemingly limitless energy. Although he attained international eminence he was exceedingly modest and unassuming, always tolerant and respectful, even toward those whose opinions differed sharply from his own firm convictions.

And he never quit studying, mostly new surgical developments but also the many related fields. Then he would write about them, scores of monographs, hundreds of case reports. He established a Department of Bone and Joint Surgery at the Denver and Gross College and was its Professor until the merger with Colorado University where he continued in the same chair until he was made Emeritus in 1915.

Dr. Packard stayed "behind the scenes" but he and his wife were the smoothly firing spark plugs that ignited the power of Denver's leading women – and in turn their menfolk – not only to establish Children's Hospital and open it in 1910 but to expand it rapidly for the next 15 years.

As CMS President he established the Society's first Cancer Committee and spurred cooperation with the just-organized American Cancer Society. In his Presidential Address he drew a sharp line between "the honest, conscientious physician" and "the purely commercial practitioner," classing the latter with the charlatan. That same year he was also President of the American Orthopedic Association.

His heavy practice schedule usually included Saturday office hours to accommodate school children and Sunday hours for out-of-town patients who could come to Denver no other day.

John R. Espey, Trinidad; 46th CMS President, 1915-16
May 5, 1864—November 24, 1945
MD 1889, Jefferson Medical College

(Photo circa 1935)

TRINIDAD was a booming center for coal mining and needed more doctors when young Dr. Espey was finishing his internship at Saint Mary's Hospital in Philadelphia. So he hurried out to Colorado that summer of 1890 and went right to work. A big practice developed rapidly. He helped build up the little Las Animas County Medical Society and before long became Chief Surgeon of the American Smelting Co. of Trinidad, local surgeon for the Colorado & Southern railroad, and finally Chief Surgeon of the Victor-American Fuel Co., then a powerful corporation.

For the next forty years John Espey was a power, himself, in the civic as well as the medical affairs of Southern Colorado. He did general practice but particularly liked surgery and orthopedics.

Patients flocked to him and the other Trinidad doctors respected him as a competent surgeon and as a leading citizen. They liked him also as a jovial companion and a keen story teller –

with but one doctor excepted. His younger brother, Dr. James G. Espey Sr., came to Colorado in 1900 and briefly joined Dr. John as junior partner. Just a year later they had some sort of "falling out," opened separate offices, and did not speak to each other for years. But shortly after World War I, when Dr. John returned from service at Fort Dodge, Iowa, as an Army Major, the maturing children of these brothers effected a reconciliation. Both doctors were basically family men and though they never again practiced together they and their families shared gatherings at each other's homes. John Espey spent many an evening reading aloud to his family, a favorite recreation.

He believed that the diagnosis of conditions causing abdominal pain was "one of the most unsatisfactory as well as one of the most important in all medicine," and made this the theme of an exhaustive and scholarly CMS Presidential Address. As President he persuaded CMS to endorse the National Board of Medical Examiners, then in the process of organization.

Dr. Espey retired in 1935, convinced that he had a gastric carcinoma and that he should no longer take the responsibility of patients. Studies proved that he was suffering, instead, from pernicious anemia, and under treatment he lived on in reasonable comfort for another ten years.

Alexander C. Magruder, Colorado Springs; 47th CMS President, 1916-17
September 14, 1867—October 12, 1924
MD 1900, Tulane University

(Photo circa 1920)

COLORADO'S medical profession received a thirty-minute patriotic tongue lashing when Dr. Magruder devoted his CMS Presidential Address to the failure of doctors, especially young doctors, to volunteer for Army service in World War I.

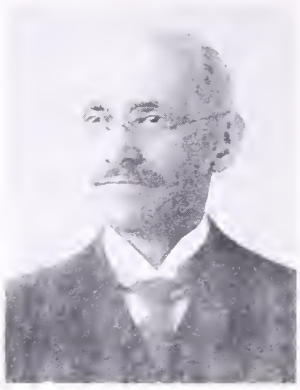
It was September 25, 1917, and for six months the government had been begging doctors to accept military commissions. Colorado was asked to supply 243 medical volunteers. Only 126 had been sworn in by that date, and of these most were in their 50s, some in their 60s, and one was 71. Dr. Magruder, at 51, had already served his weeks of training as a Major and had obtained Army leave to come home just long enough to preside over that CMS Annual Session. His speech and others which followed it were apparently effective, for within a few months Colorado's "quota" was more than filled.

But normally Dr. Magruder's personality was anything but critical of his fellow man. He was courteous and genteel, as would be expected of the well-educated representative of "a very old family" of the deep South. Almost paradoxically, his contemporaries in Colorado Springs remember him as "a happy-go-lucky extrovert, always ready with a good story though some of them were unprintable." "He was a square shooter and if the other fellow was, too, he need never fear Alex Magruder," says one who as a young doctor shared Dr. Magruder's office and knew him well. But all his life he had one consuming hatred -- faith healers -- whom he would denounce at length with unremitting abhorrence on any occasion.

He was born and reared in Richland, Miss., and his premedical education included both the BS and MS before he entered medical school. His initial Colorado location was in booming Cripple Creek where he did general practice with a growing interest in EENT work. As soon as he was financially able, he took a year off to study the specialty in London, Berlin, Vienna, and at New York's Manhattan Eye and Ear Hospital. Then he settled in Colorado Springs and soon limited his work to ophthalmology.

Dr. Magruder became a civic as well as a medical leader in Colorado Springs and seemed to love the city and its people, but as one colleague put it, "he always had the Teller County viewpoint in medical society affairs."

Edward Jackson, Denver; 48th CMS President, 1917-18
March 30, 1856—October 29, 1934
MD 1878, University of Pennsylvania



EDWARD Jackson became medically world-famous, the only CMS President to date of whom that can surely be said. Instruments and techniques he designed are today universally used by ophthalmologists.

He was already a great Philadelphia teacher and ophthalmologist when his wife's tuberculosis brought them to Denver in 1894. After her death he returned to Philadelphia, but in fear for his children's health he re-settled here in 1898. His professional stature was still growing when he died at 86. His accomplishments and his many honors cannot be listed here in even the smallest type but a few must be mentioned.

He wrote several textbooks, the eye chapters of others, and hundreds of papers reflecting original research and discoveries. He founded and for years edited both the American Journal of Ophthalmology and the International Ophthalmic Year Book. He founded the first postgraduate course in ophthalmology. He proposed, then helped found, the American Board of Ophthalmology, the first recognized specialty board. He helped found Philadelphia's famed Wills Eye Hospital, and held professorships there and later at Colorado University. He was the founding editor of "Colorado Medicine," now the Rocky Mountain Medical Journal. He developed and perfected skiascopy, and also the cross-cylinder measurement of astigmatism.

In later life, honorary doctorates, the presidencies of local, state and several national societies came to him, and election to Britain's Royal Society of Medicine. But even then he was equally "at home" with the lowly as with the world's medical giants.

Dr. Jackson loved to hike and climb mountains, was a charter member of the Colorado Mountain Club, led many of its trips even into his 60s, and kept himself in fine physical trim. Called in consultation at Colorado General Hospital one day, he chided the young resident who rang for the elevator. "Why, it's only three floors; let's walk," said Dr. Jackson (who was then 80!), and he led the way quickly up those three double flights.

He was born in West Chester, Pa., and was a graduate civil engineer before studying medicine. He started general practice, but an attack of diphtheria left him with temporary paralysis of his ocular accommodation, and this led to his life-long study of ophthalmology.

Francis H. McNaught, Denver; 49th CMS President, 1918-19-20
January 15, 1854—March 6, 1940
MD 1878, Columbia University

(Photo circa 1933)

DR. McNAUGHT was the only man in this Society's first century to serve as CMS President for two years. Perhaps no one else ever will. This came about when the House of Delegates adopted the President-elect system in 1919. Past Presidents proposed it in 1918; no one of them had ever had more than two days notice by the Nominating Committee of his probable election, yet each took office on the day of election and was expected to start "running the show" instantly. CMS work had annually suffered weeks of delay until the new President had organized his administration and committees, and many a new President's practice suffered accordingly.

Each President had planned and presided over the Annual Session next following his election, opening it with his Presidential Address. Dr. McNaught did this in the 1918-19 year, but at the 1920 Session he presided only long enough to hand over the gavel to his successor. In recent years CMS has amended the times for installation and formal addresses, but the one-year President-elect plan seems firmly established in all major medical societies.

A native New Yorker, Dr. McNaught practiced in the Catskill mountains until coming to Denver in 1891. Here he became a surgeon for the Burlington and later Chief Surgeon for the Colorado & Southern and the Colorado Midland railroads. Gradually he gave up most of his general surgery in favor of obstetrics and gynecology, was Professor of Obstetrics at the Gross Medical College and, after the merger, Professor of Operative Gynecology at Colorado University. He carried an exceptionally heavy schedule combining railroad work, teaching, and private practice.

Dr. McNaught was the only CMS President to date who was elected while in uniform and on active military duty. He was then on leave from Army hospital service in Texas. He and others called attention in 1918 to the fact that eight CMS Past Presidents were then on active duty in the Army. He and several of the others were well over 60. In spite of his military commitments, he was credited with a quick and efficient organization of a CMS administration and most of his committeemen gladly continued through his second year. In his Presidential Address Dr. McNaught sounded Colorado's first call for a federal Secretary of Health with cabinet rank.

Frank R. Spencer, Boulder; 50th CMS President, 1920-21
June 12, 1879—April 20, 1957
MD 1902, University of Michigan

"OUR FATHER; Bless those gathered here today, and may their hearts become as soft as their heads in return for asking me to invoke the blessing."

Thus did Dr. Frank Spencer dissuade the Boulder Rotary Club from urging him a second time to offer the weekly invocation, even though Rotary had long been his principal non-medical interest and he was a Past President of the Club. He was deeply religious, but not a churchman.

He was all man, but had about him a compulsive orderliness reminiscent of 19th-century grandmothers. When leaving his office for the day or even just for an errand he would personally see to it that every item of professional and business equipment was exactly in its proper place, down to the last paper clip. The same at home — every chair, every sofa pillow, must be moved to its exact-to-the-inch location before he turned out the lights for the night. His growing sons found it impossible to so replace a borrowed tool in their Dad's spotless garage that he would not know they had used it. He was equally methodical in his practice, his teaching, and his many medical society offices.

Frank Spencer was reared in Iowa and did two and one half years of postgraduate study before settling in Boulder. He taught otolaryngology at Colorado University from 1905 to 1947, less the two years he was an Army MC Major in World War I. Besides his teaching and his CMS Presidency he had chaired his AMA Section, had twice been Vice President of the American Triological Society and President of the American Academy of Ophthalmology and Otolaryngology. Most of these positions preceded the day of public address systems, but Dr. Spencer's stentorian voice needed none. Some medical students claimed that if the windows were open they could take full notes on his CU lectures while lying outside on the grass!

"Sure; it's tough now, but you'll make it and it'll turn out all right," was his typical word of encouragement and sympathy to medical students who were working their way at menial jobs. He helped many of them financially.

As a young man, Dr. Spencer had hunted and fished a good deal, and he had assembled the finest of equipment for these hobbies, but by middle age he abandoned vacations in favor of CMS and specialty society activities and his writing. He contributed almost 100 articles to major medical journals.

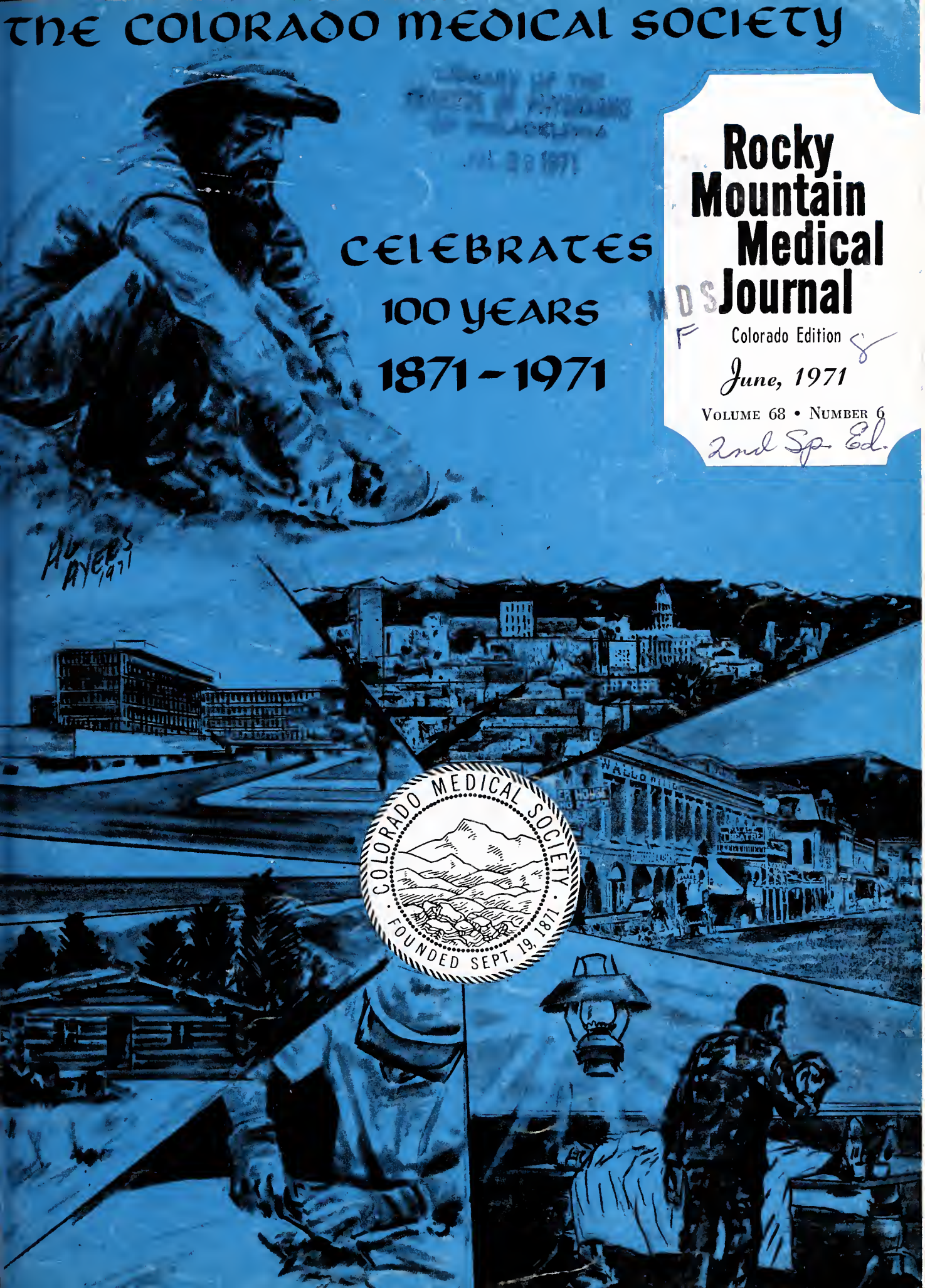
THE COLORADO MEDICAL SOCIETY

LIBRARY OF THE
JUL 28 1971

CELEBRATES
100 YEARS
1871 - 1971

Rocky Mountain Medical Journal
Colorado Edition
June, 1971
VOLUME 68 • NUMBER 6

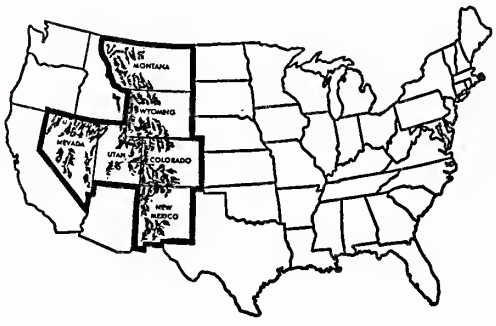
M D S
F
2nd Sp. Ed.



ROCKY MOUNTAIN MEDICAL JOURNAL

Title Registered U. S. Patent Office

JUNE 1971
Volume 68, Number 6
Colorado Edition



Editorial and Business Office
1809 East 18th Avenue
Denver, Colorado 80218
Telephone 399-1222
(area code 303)

Publication Office
2177 West 7th Avenue
Denver, Colorado 80204

Address all correspondence relating to subscription, advertising or address changes to Editorial and Business Office.

A Second Colorado Edition

. . . continuing and concluding the series of articles begun in the April 1971 Edition to commemorate the Colorado Medical Society's 1871-1971 Centennial, under authority of the House of Delegates and the Board of Trustees.

Compiled and edited by Harvey T. Sethman under direction of the above authorities and their Centennial Committee.

The Committee and its authors are especially indebted to Mr. Alan Ayers of The Denver Post's *Empire Magazine* for the cover design and many other sketches throughout these pages.

CENTENNIAL COMMITTEE of the Colorado Medical Society:

Bradford Murphey, MD, Chairman
Clyde Stanfield, MD, Vice Chairman
John H. Amesse, MD
Roy R. Anderson
Lewis Benesh, MD
Barron Beshoar
Marcia F. Curry, MD
Judith Hannemann
Harold D. Jourdan, MD
Peter A. Morstad
Nolie Mumey, MD
Robert L. Perkin
Harvey T. Sethman
Richard W. Whitehead, MD

Consultants:
Douglas W. Macomber, MD, Scientific Editor;
Carl H. McLauthlin, MD, Assistant Scientific Editor;
Donald G. Derry, Managing Editor;
Rocky Mountain Medical Journal

Mrs. Dolores Renze, State Archivist of Colorado

Ownership and Sponsorship: The Rocky Mountain Medical Journal is owned by the Colorado Medical Society and is published monthly as a nonprofit enterprise for the mutual benefit of the organizations which jointly sponsor it. It is published under the direction of the Board of Trustees of the Colorado Medical Society, assisted by an Editorial Board representing the sponsoring organizations. It is the Official Journal of the Rocky Mountain Medical Conference and the medical societies of Colorado, Montana, Nevada, New Mexico, Utah and Wyoming.

Subscription: $7.00 per year in advance for regular editions, postpaid in the United States and its possessions, or, single copy 60¢ plus postage. Subscription to regular editions is included in medical society dues of sponsoring state medical organizations. Colorado Centennial Editions will be mailed to all members of the Colorado Medical Society; a limited number of extra copies of this Edition will be available at $3.00 each, plus postage.

Copyright: This Journal is copyright, 1971, by the Colorado Medical Society. Requests for permission to reproduce anything from the columns of this Journal should be addressed to the Journal Office.

Second class postage paid at Denver, Colorado

Table of Contents

Second Special Colorado Medical Society Centennial Edition
(Continued from the first, April 1971, Edition)

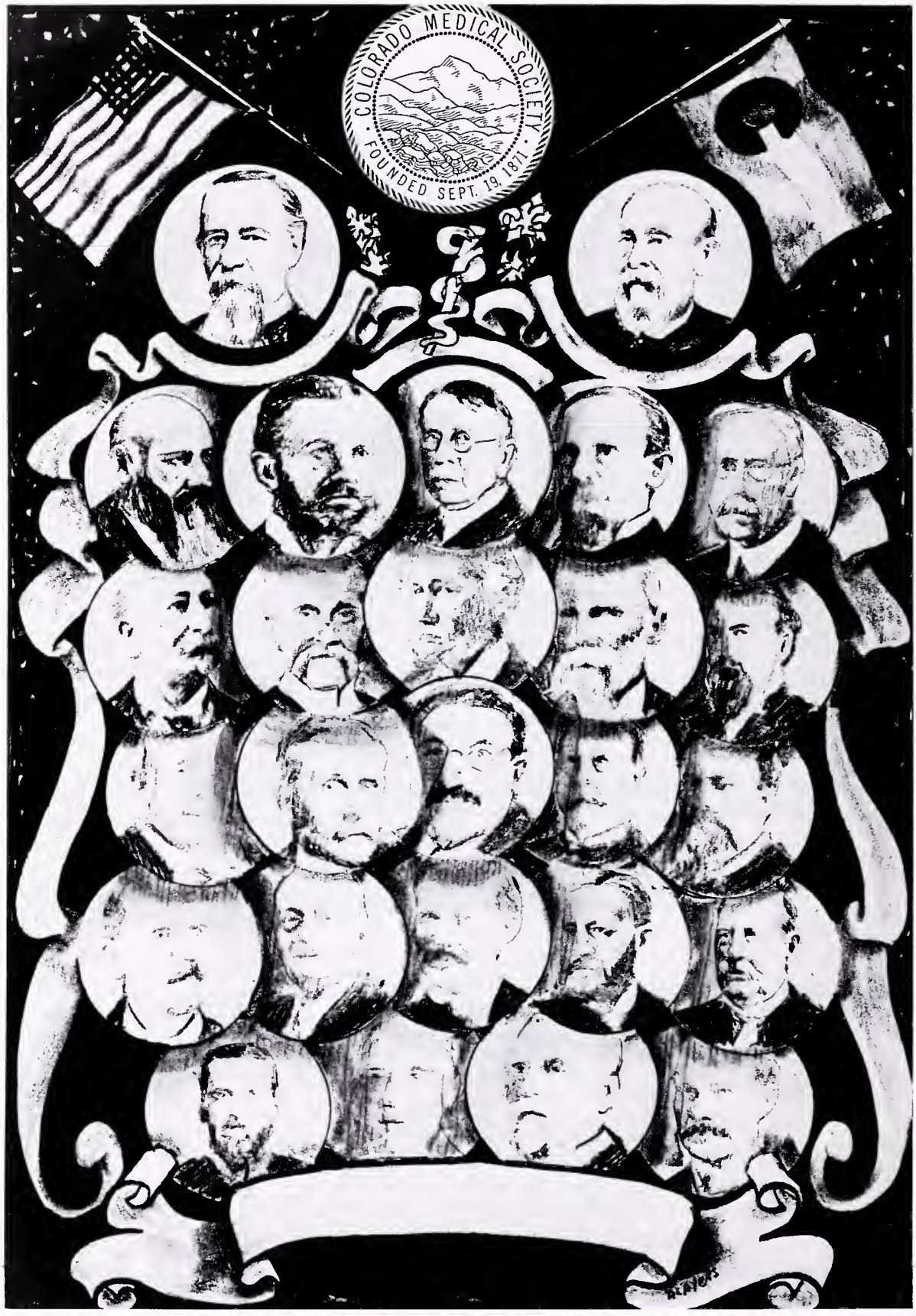
CMS Presidents – The Second Fifty Years; Harvey T. Sethman iii

Medical Education in Colorado: 1881-1971; Richard W. Whitehead, MD, and Robert L. Perkin 135

History of Public Health Medicine in Colorado; Roy L. Cleere, MD, and Rowene Danbom 181

The Changing Face of Medical Practice; Clyde Stanfield, MD 199

NOTE: *A few copies of the preceding Edition are available and for sale at the office of the Rocky Mountain Medical Journal, 1809 E. 18th Avenue, Denver, Colorado 80218. See also the announcement on the inside back cover of this Edition.*



Our artist sketches some of the early CMS Presidents, including, top left, Dr. George S. McMurtrie, temporary chairman of the 1971 organization meeting, and top right, Dr. Richard G. Buckingham, first CMS President. (Reprinted from the April 1971 Centennial Edition)

CMS Presidents - The Second Fifty Years

Harvey T. Sethman*

IN APRIL, 1971, the first of two Colorado Medical Society Centennial Editions of the Rocky Mountain Medical Journal included thumb-nail biographic sketches of the Society's first fifty Presidents. Those who served the Society's second fifty years now follow.

Any CMS members who have not yet seen that first series of sketches may find a condensation of the explanatory introduction helpful, and they are referred to the first edition for additional details and the writer's acknowledgment to many helpers. Hopefully, those who did read the first edition will forgive a little repetition.

The series will try to answer the following questions, or at least point toward answers: What sort of doctors did the Colorado Medical Society choose as its Presidents through its first 100 years? What were their backgrounds? What were their dreams and hobbies, their special loves and hates, their foibles if any – and what careers did they achieve aside from holding this Society's highest office? In the spring of 1968 the Society's Centennial Committee decided that "brief, biographic, anecdotal character sketches" of each Past President should be part of the eentennial year publication. The sketches were to be *very* brief and of uniform length, and each should include a picture of the man described. The Committee assigned that task to this writer because he had worked under thirty-eight of the Presidents and had known a number of earlier ones who were still active in Society affairs when he was first employed in 1929.

Preparation of the series required extensive biographic research, especially regarding the earliest Presidents, a study of each Presidential Address and sometimes of other papers written by the man concerned, and, where possible, consultation with relatives, descendents, friends and colleagues of the Past Presidents. Writing and re-writing followed, then drastic condensation to fit the allowable space. Almost all the sketches underwent "radical surgery" bordering on "amputations," because books could be written about many of these doctors.

The first line of each heading indicates the Annual Sessions of CMS at which each President's term began and ended, except as noted where one resigned due to illness and was succeeded by his Vice President. Thus CMS had 51 Presidents in its second fifty years.

Pictures of almost all those who follow are from photographs taken at the time they were elected. A few are pictured later and in these instances the approximate year is indicated.

Some of the Past Presidents were truly great men, a few attaining national and even international fame. A few others were real "characters" with eccentricities more than matching their professional stature. Some were just good doctors, highly respected by their colleagues and having more than average organizational abilities. Perhaps a scant half-dozen had actively sought the office; most accepted it on persuasion of their friends and admirers and sometimes only under extreme pressure. A few seemed to assume that the Presidency was just an honor to accept with thanks, but the overwhelming majority knew this high honor carried with it a heavy responsibility involving personal sacrifice and hard work, with diminished income and less home life than ever for the ensuing two years as President-elect and President.

The Centennial Committee considered it essential, if the Society's full century was to be pictured, to sketch even the recent Presidents who are still active. Happily, twenty of them are with us as this Edition goes to press. With continued health, any of them may enhance their careers still more; hence these sketches of them, even though up-dated in May, 1971, must certainly be considered unfinished.

*The author was the first Executive Secretary of the Colorado Medical Society, and served as such and as Managing Editor of the *Rocky Mountain Medical Journal* from June 1, 1929 until his October 1, 1965, retirement.

Harry A. Smith, Delta; 51st CMS President, 1921-22
July 5, 1872—December 16, 1963
MD 1906, University of Louisville

(Photo circa 1933)

THERE wasn't an eye, ear, nose and throat specialist on Colorado's Western Slope until well past the turn of the century. Patients needing such specialized care would usually be sent to Denver or Salt Lake City, or in emergencies a specialist would be summoned from one of those cities.

Then in 1908 Dr. Harry Austin Smith (he usually used his full name to distinguish himself from other Smiths) settled in Delta and for at least ten years Delta was the unquestioned "EENT capital" of Western Colorado. He had come to Denver, first, right after a two-year EENT internship, but he remained only a few weeks. After he had learned of the Western Slope's need for someone with his training, he chose Delta as his permanent home. Soon he was a co-founder of the Delta County Medical Society which he later served several times as President.

Success came almost instantaneously and in a few years he welcomed a partner and then he could take a month off each year for foreign travel. He studied foreign medical developments and foreign governments, and when he became the second Western Slope President of CMS his Presidential Address dwelt on the relationships of doctors to governments, here and abroad. He particularly noted some contrasts. Here in America, he said, "the public is suspicious of doctors and of everything we propose" and U.S. politicians "are welcoming cultists and charlatans." But he noted that in Europe and South America physicians were serving in the highest governmental offices and legislative councils, and cultists were almost non-existent. Yet medical science was advancing "by leaps and bounds" on all three continents.

He called for organized medical instruction of elementary and high-school teachers and he proposed that medical societies set up short courses for teachers and make medical guidance of them continuously available.

When the Great Depression struck, Dr. Smith had already reached financial independence, but his younger partner had not. So in 1932 Dr. Smith told that friend that Mrs. Smith needed a lower altitude and that "Depression or no depression, there's plenty of work here for one of us, so you just take it all and I'll move to the Coast." Dr. Smith soon resumed practice in Whittier, Calif., and limited his practice to ophthalmology until he retired in 1952. He visited CMS Annual Sessions every few years and in 1953 was elected a lifetime Honorary Member of the Colorado Medical Society.

J. Crum Epler, Pueblo; 52nd CMS President, 1922-23
June 17, 1871—February 6, 1949
MD 1894, University of Tennessee

(Photo circa 1935)

DID YOU ever swallow raw sheep intestine? You might have, had you been Dr. Epler's patient for gastric radiography just before World War I. Non-poisonous barium sulphate was not yet available, only a toxic type, so the ingenious doctor would obtain a two- or three-foot section of small sheep bowel from a local packing plant, clean it, suture one end tightly and have the patient swallow that end. Then Dr. Epler would fill the tube with the radiopaque emulsion, take x-ray films, use the fluoroscope, and then pull the tube out again.

One old friend has called Crum Epler "a frustrated inventor." In medical society work (and many years as CMS Secretary) as well as in his practice he was always an innovator.

After internship he started professional life teaching anatomy and surgery at Vanderbilt University. He volunteered for the U.S. Army in the Spanish-American War, served in Cuba as

an MC Major, and on discharge came to Pueblo in 1899. He did general practice for some ten years, then switched to radiology until he went to France in 1917 in command of an evacuation hospital. On his return to Pueblo he specialized in surgery and began organizing a small clinic.

He and several others opened the Pueblo Medical Group January 1, 1920, but soon a competitor, The Pueblo Clinic, was also formed, the latter with its own private hospital, and an intense and sometimes bitter rivalry existed for almost twenty years.

In his most active years Dr. Epler was widely respected as a surgeon by many colleagues though he was cordially disliked by others, even by some members of his own group. The attritions of death and resignation were seldom replaced in his group and the remaining members disbanded it in 1943.

Dr. Epler's CMS Presidential Address was devoted entirely to advocacy of group practice – not just in cities but in towns supporting any two or more doctors, who he believed should practice in some form of partnership "rather than in jealous competition."

In the late 1920s the Pueblo Medical Group bought Woodcroft Hospital (for nervous and mental diseases) and in 1935 Dr. Epler himself took over the superintendency, abandoned surgery, and thereafter limited his work to psychiatry and hospital management until a cerebral accident in 1948 forced his retirement.

Melville Black, Denver; 53rd CMS President, 1923-24
March 15, 1866—November 12, 1941
MD 1889, Bellevue Hospital Medical College, New York

HOW COULD anyone so brutally critical in public as well as in private life ever reach the CMS presidency? The answer is found in Dr. Black's obvious honesty and his rare abilities as ophthalmologist, teacher, and an always willing worker for medical societies. These earned him more admirers than enemies.

But he would dispute with other doctors about diagnosis or treatment – in front of the patient. When asked to open the discussion of a guest speaker's paper at a CMS meeting, Dr. Black once arose and said: "I didn't know a damned thing about this subject before this talk, and I still don't," and abruptly sat down again. He once gave his opinion of another ophthalmologist to a group of interns, residents and nurses as "I have never yet known a preacher who left that calling for another profession who amounted to a damn in the second one."

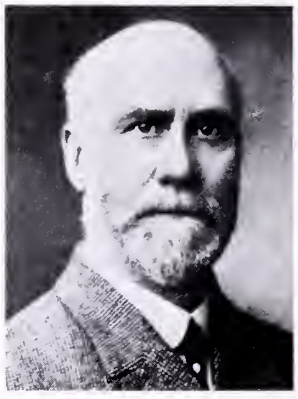
He was a poor youth from Iowa, but as a druggist in Wichita Falls, Tex., he profited enough to see him through medical school by bottling carloads of carbon disulphide and selling it under his own label – for soaking in cattle droppings to be stuffed into prairie dog holes by cowboys who were losing too many animals with broken legs.

Dr. Black came to Denver in 1891 after internship and an extra year of EENT study. When his largely surgical practice became lucrative, he worked mornings only and played golf almost every afternoon, letting a young ophthalmologist use the office to get started. One afternoon an emergency case was brought in. The young man didn't want to "steal" a surgical case so he telephoned Dr. Black at the golf club. He got this reply: "I started years ago not letting my work interfere with my play and I'm not changing now; you go ahead."

He served on dozens of CMS committees including years on its Publication Committee. He held professorships at both Denver & Gross College and Colorado University, heading the CU eye department after Edward Jackson died. He helped found both the Colorado Ophthalmological Society and the American College of Surgeons and was a frequent officer in the AMA's Section on Ophthalmology.

Obviously, not all his afternoons were spent on the golf course!

Henry Sewall, Denver; 54th CMS President, 1924-25
May 25, 1855—July 8, 1936
MD 1889, University of Denver



"THE TUBERCLE bacillus has been very kind to Colorado," young Sewall said not long after arriving from Michigan to "chase the cure" himself, and he rattled off the names of many Coloradans who had come here to whip the white plague and had remained to become leaders in all walks of life including medicine. Later historians always included Henry Sewall in that category and, as one said, "A work bench and Sewall made a laboratory as surely as a log with Mark Hopkins at one end and a student at the other made a college."

He was not yet a physician, but at 30 he had a Johns Hopkins Ph.D. and had been Professor of Physiology five years at the University of Michigan. While there he had worked by correspondence with Pasteur and had furthered Pasteur's revelations with his own discoveries in immunization, widening a field that is still fertile. Later, in Denver, his researches in tuberculosis brought him the first Trudeau Medal bestowed west of the Atlantic seaboard.

He was born in Virginia and was educated at both Wesleyan University, Conn., and Johns Hopkins, where he taught biology while earning his M.S. and Ph.D. When his health had returned after a couple of years in Denver, this Ph.D. entered the University of Denver as a freshman medical student! Immediately upon graduation he became Professor of Physiology at the Denver and Gross College, and CU made him Professor of Medicine when the schools merged in 1911. Thereafter hardly a year passed that the name of Henry Sewall did not strike a new high across the whole country in research publications, in honorary doctorates from universities, and in presidencies and medals from national as well as state medical organizations.

He modestly and seriously objected when some called him "brilliant." "Just keep your mind open and inquiring, and work hard; you can do as well or better," he said. Dr. Sewall did work incessantly and his "vacations" were devoted entirely to writing hundreds of papers on his findings. He seemed happiest in a laboratory or consulting on a challenging case in internal medicine, his eventual specialty. But he was also happy to put his arm around a young medical student and help the youth solve a problem.

He usually seemed deadly serious, but of a sudden out would gush some whimsy or a good joke – likely on himself – followed by a resounding slap of his knee and a Sewall guffaw that could be heard in the next county.

George A. Boyd, Colorado Springs; 55th CMS President, 1925-26
Born in 1864—January 15, 1937
MD 1890, Bellevue Hospital College, New York

(1935 photo)

FIRST of all, we must label Dr. George Boyd a "character" and a complete non-conformist. Except when caring for a patient, he usually was in a friendly but loud and strenuous argument. If he were living today he would be loudly attacking "The Establishment," for nine times out of ten he supported a minority view and many times he was a minority of one! He fought, lived, and died, so to speak, for the Single Tax; and he espoused more than one strange proposal for "land reform."

But hordes of patients simply worshipped him. He served them loyally, day and night, with genuine affection and resourceful skill. A former TB patient himself, he understood better than most colleagues the deep feelings of a sick patient. He was a past master of the Art of Medicine.

His best friends in the profession uniformly and violently opposed his equally violent views on politics, taxation, economics, and his occasionally bizarre ideas as to how medicine should be

practiced. But they, too, loved him, trusted him, and they respected him as a competent surgeon. So they elected him to every honor his local medical society could bestow. Then in 1924 they chose him President-elect of CMS, both because they loved him and because they knew he would resist the inroads of the Ku Klux Klan, which was riding rough-shod that year over Colorado politics and was even trying to get control of CMS and its county medical societies. Delegates who elected him did so "with their fingers crossed," but his presidency was an unexpectedly calm one. He chose sound committees and somehow kept the almost rabid Klan and anti-Klan elements in CMS from each other's throats.

He came to Colorado Springs in 1904 to "chase the cure" just a year after the Kansas Medical Society had elected him to the AMA House of Delegates. He had twice interrupted his 12-year Kansas practice for Chicago postgraduate work in pathology and in surgery, his eventual specialty.

He was a short man, and stood on a favorite old wooden stool when operating, meanwhile talking incessantly on his pet theories to anyone in the O.R. who would listen.

An inveterate tobacco chewer, Dr. Boyd's big brass spitoon near his old roll-top desk was in constant use, including the day a woman, a Boston Back Bay socialite, called on him about a social service problem. An hour later she told in shaking voice how his trajectory had missed her skirt by inches every two minutes throughout the interview! Though still pale from the experience, she admitted she liked him. You couldn't help liking him!

George H. Curfman, Salida; 56th CMS President, 1926-27
November 4, 1877—June 24, 1947
MD 1905, Northwestern University

FEW EVER heard Dr. Curfman raise his voice; he spoke so softly one had to listen carefully; yet this gentle, kindly man was powerfully persuasive. On occasion he could be very stubborn, but he was also a cooperative team worker. He was primarily a surgeon and executive, but was competent in the whole field of medicine. He helped found both the Arkansas Valley Medical Association and The Westerners. Western and Indian history fascinated him. He always wished he had more time to pursue medical research personally, especially study of the lymphocyte.

Dr. Curfman started practice as a junior surgeon at the D. & R.G. railroad hospital in Salida following a brilliant scholastic record and an internship at Chicago's Cook County Hospital. Within two years he was appointed Senior Attending Surgeon. Due largely to his stature, Salida became a medical center for south-central Colorado although other towns in the area were larger. In 1936 he was appointed Chief Surgeon of the railroad and had to move to Denver – with some regrets because he loved Salida and his valley.

Dr. Curfman was a great host. So long as there was a spare bed in his home no visiting doctor or other friend was permitted to stay in a Salida hotel. When the Arkansas Valley Medical Association met every few years at the old Mt. Princeton Hot Springs Hotel, the fine food and drink belied that association's small treasury. How come? No one who really knew George Curfman needed to wonder!

Colorado's first report of a botulism outbreak was credited to Dr. Curfman; it occurred in 1912 at a mining camp near St. Elmo.

When the 1918 influenza was at its worst, he succeeded at least temporarily where Salida's moral leaders had failed for years – he persuaded Laura Evans, famed "madam" and boss of notorious Front Street, to close the entire red-light district for the duration of the epidemic and to make all the intelligent "girls" report for physical exams, a clean up, and then nursing duty at a hotel he and the Red Cross had commandeered as an emergency hospital. They did a good job!

He had read of a Toronto success with intravenous Carrell-Dakin solution (Chloramine-T) in anthrax septicemia. He was the first to try it in the toxic influenzas and their pneumonias, found it valuable if used early, notified other doctors and health authorities, and was credited with reducing the heavy mortality.

William A. Sedwick, Denver; 57th CMS President, 1927-28
July 9, 1869—May 28, 1948
MD 1893, University of Maryland

HERE WAS another in the long list of physicians who came west around the turn of the century to recover from tuberculosis. Dr. Sedwick's recovery, like that of most others, took a long time in those days; but, again like many of his colleagues, once the disease was arrested he enjoyed a long life.

He was a native of Maryland where he was educated from grade school through college and medical school. He served his internship at the Marine Hospital which later became the U.S. Public Health Service Center in Bethesda. Soon thereafter, he was attacked by "the bug" and headed for the dry climate of Western Wyoming. As soon as his health permitted he started general practice in Rock Springs, Wyo., but stayed only a year and moved to Durango, Colo., where he was in general practice for five years, serving part of that time as county and city health officer.

In 1904 he undertook a year's study of ophthalmology, first in Baltimore and later at the Wills Eye and Ear Hospital in Philadelphia. He then returned to Colorado and established himself permanently in Denver. Not long afterward he became active in state medical society affairs.

In 1914 there was some agitation to increase CMS's annual dues from $3.00 to $5.00 in order to have the Society undertake more activities than just its simple annual meeting. The majority of the House of Delegates was aghast at this proposed extravagance! (Think of today's dues and budgets! Of course in those days no salaries and no travel or other expenses were paid to anyone; the secretary was lucky if he was reimbursed, even in part, for official stationery and postage.)

Dr. Sedwick had the reputation both then and later as one of the closest men with a dollar in the Denver Medical Society. So who could better serve as watchdog over the State Society's treasury? The House of Delegates elected him Treasurer in 1914 and re-elected him three times; each was a three-year term. Then he was chosen President-elect. As President he held true to his tight-fisted, non-spending principles and gave CMS a year when income far exceeded expenditures.

Another doctor filled in as Acting Treasurer for a little more than a year while Dr. Sedwick served in the U.S. Army in World War I. As too often happened in the Army, Captain Sedwick was assigned not to his own specialty, but to the orthopedic service. However, he was both inventive and resourceful. While in that service he designed and supervised the making of special instruments for flap retraction in amputations of long bones, a method said to have greatly speeded healing and convalescence.

Samuel B. Childs, Denver; 58th CMS President, 1928-29
November 5, 1861—May 23, 1938
MD 1887, University of City of New York

MEDICINE was in his blood because his father was a prominent physician in Hartford, Conn. But before he started medical school he already had a big name and a never-surpassed record in baseball. As first baseman he fielded 1,000 for the entire season as a senior at Yale, helping his team to win the intercollegiate championship. After graduation with a BA, he played professional ball with Hartford of the old Eastern League and became a lifelong friend of a teammate, Cornelius McGillicuddy. Later, every trip by Dr. Childs to Philadelphia, and they were frequent, included a visit with "Connie Mack," usually at the Athletics' old Shibe Park.

In 1895 Dr. Childs was a successful surgeon in Hartford, but contracted tuberculosis, so he "chased the cure," first in the Florida Everglades and then for almost three years in El Paso, Tex.

He moved to Denver when the disease was arrested and in 1898 began to practice and to teach anatomy at the old Denver and Gross Medical College.

But Roentgen's discovery of the x-ray fascinated him and by 1902 he was determined to specialize in the new field. On August 14 of that year he made what was for Colorado – perhaps for the nation – the first radiologic diagnosis of a kidney stone. The attending physician, Dr. W. A. Jayne, confirmed the diagnosis by surgery.*

He advanced rapidly in his specialty, in teaching radiology at the University of Colorado School of Medicine, in prolific writing, and in local, state and national medical organizations, becoming President of several of them. As CMS President-elect he helped create a full-time office for the Society and, as President, to employ the Society's first Executive Secretary.

Whether fishing, hunting, golfing, or watching a baseball game, or any other time when not too inappropriate, he loved to have a bit of "cut plug" in his cheek. He'd had one there quite a while one day when he, Dr. Frank Stephenson and the writer, walking down Denver's 16th Street, met a lady who engaged us in a lengthy sidewalk conversation. Soon Dr. Childs had a real problem! The ordinary step to the curb would not be in his nature in the lady's presence. So he swallowed. A half-hour later, back in his office, he paid the common gastro-intestinal price. Yes, Dr. Childs, tall, erect, stern, and always the gentleman, was also stern with himself.

William Senger, Pueblo; 59th CMS President, 1929-30
June 8, 1874—September 5, 1955
MD 1901, Yale University

YOUNG Dr. Senger learned early about medical societies. After one internship at New York's Presbyterian Hospital, he began another at the Colorado Fuel & Iron Co.'s Minnequa Hospital where an uncle, Dr. Richard W. Corwin, Chief Surgeon for the CF&I, was in mid-term as President of CMS. With that internship finished, Dr. Senger began general practice, but also helped Dr. Corwin modernize the hospital.

Until 1910 he served Minnequa only part time and developed a successful private practice soon limited to surgery. Then he was appointed Assistant Chief Surgeon. For years thereafter he was known as a "loner," due in part to an innate reserve with new acquaintances, but more so due to his work. His then aging uncle assigned him literally all of the surgery for CF&I employees, from the company mines as well as from its Pueblo steel plants. He once told a close friend: "People say I'm anti-social – Hell, I haven't had any time to be social," and it was true.

When Dr. Corwin died in 1929, Dr. Senger was President-elect of CMS and the CF&I appointed him Chief Surgeon. Minnequa Hospital was renamed the Corwin Hospital, until it was merged with St. Mary's in the late 1940s.

Of Dr. Senger's youth little is recorded, but this New York-born son of immigrants from the Austrian Tyrol earned his own way through both Williams College and Yale Medical School.

It took time to know him well. Most first impressions of Dr. Senger were those of a stern, aloof, almost cold man. But even much younger men, once they had proved themselves worthy of his friendship, would suddenly be asked to "quit this Dr. title – to you my name's Bill." He was really soft-hearted and gentle.

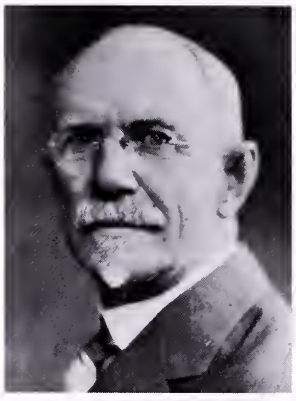
As CMS President he guided a Constitution and By-Laws revision to solidify the previous year's reorganization with a full-time Executive Secretary. As President-elect he had been a strong member of the committee planning that change.

He became active in more than county and state medical societies, once trusted assistants began to relieve him of 18-hour days. He was active in the American College of Surgeons, was a co-founder of the American Board of Surgery, wrote many scientific articles for leading journals, served 10 years on his District School Board, and gave time to civic and charitable organizations.

In happy retirement after 1943 he also found time for his favorite hobbies, fishing Colorado's trout streams and practicing another "profession" as an expert gardener.

*"Radiologic Pioneers in Colorado, 1896-1918," unpublished m/s by W. Walter Wasson, MD, 1934

William A. Kickland, Fort Collins; 60th CMS President, 1930-31
May 3, 1868—July 7, 1932
MD 1895, University of Michigan



EVEN GRADE and high school teachers in Crystal, Michigan, recognized in young Kickland a brilliant scientific mind. He helped with teaching while in high school. He became a teaching assistant in biology at the University of Michigan while still in pre-medic courses. He was named instructor in biology while a sophomore medical student, a year later was appointed demonstrator in anatomy, and in his senior year he was also Assistant Professor of Obstetrics and Gynecology!

In those years many physicians started practice right after obtaining the MD; so did Dr. Kickland, in his case certainly with much if not more of the experience that would have been gained from an 1895 internship. He moved to Fort Collins the same year and soon was a leading surgeon of the area. He practiced there until his final illness, though with many interruptions for postgraduate work in U.S. and European medical centers. In 1907 he spent five months studying in Vienna, and in 1914 he completed a clinical tour of most European capitals just before the outbreak of World War I. In 1918 and 1919 he served as a Captain in the U.S. Army Medical Corps.

Dr. Kickland was a highly dignified and strictly professional individual, one whom no one but his wife called by his first name, nor did he use first names in addressing or referring to anyone else, even his long-time office nurse. He could not abide the abbreviation "Doc."

Both in his practice and in his hobbies he studied, analyzed, and planned thoroughly, in advance. His surgery demonstrated this capacity and habit, which resulted in exceptional diagnostic acumen and surgical judgment followed and accompanied by rapid technique and no unnecessary moves at the operating table. He bought the second x-ray unit in the Fort Collins area, but wouldn't let his own nurse touch it until she had completed a course in Denver and had become a registered technician — a rarity in those days.

He analyzed types, designs, values and prices of Oriental rugs for a full year. Then — but only then — he visited Asia to buy rugs for his home. He made similar studies before acquiring power tools for his basement workshop, where he built things for his home and made toys for the many neighborhood children he loved, never having had children of his own.

Dr. Kickland was a frequent patron of northern Colorado fishing streams and posted very respectable scores as a week-end golfer, but his home workshop was his favorite hobby.

Edward Delehanty, Denver; 61st CMS President, 1931-32
March 19, 1868—November 4, 1955
MD 1895, University of Colorado

EDWARD Delehanty was certainly our Nestor of neuro-psychiatry and its modern teaching in Colorado, where he pioneered that specialty both in practice and teaching.

Before studying medicine he had taught school in his native town of Geneseo, N.Y., and later in Golden, Colo., where he became a school principal. After his internship and a year as chief resident at Arapahoe County (now Denver General) Hospital, he was in general practice for several years, becoming more and more interested in neurology and psychiatry. Postgraduate work in the specialty was next, first in New York, later in Vienna, then the world's medical Mecca. He returned to Denver in 1905 and was soon appointed Professor of Nervous and Mental Diseases at the University of Colorado, a position he held with distinction for 25 years.

Dr. Delehanty could "put psychiatry across" in simple language to the medically uninitiated. He was in great demand as an expert witness, known to bar and bench as one who would present the plain facts as he saw them, in terms any jury could understand. He was instrumental in devel-

oping the Mental Advisory Commission to the County Court, then known as the "Lunacy Commission," and was active in formation and early development of the Colorado Psychopathic Hospital.

A few days after installation as CMS President, he told the Executive Secretary: "I didn't accept this job just as an honor; I want to help all year. You're supposed to visit all the county societies. Any reason I shouldn't go along? I'd like to find out what's on the doctors' minds, right in their home towns." He did just that, inaugurating a custom followed by most other CMS Presidents to this day. And in those prohibition years whenever we arrived at our destination, be it 30 miles or 300 from Denver, his bag always produced a four-ounce prescription bottle of good bourbon for each member of the traveling party.

Dr. Delehanty was a devout Roman Catholic and a leader in the Knights of Columbus, but he enjoyed friendly discussions of religion – never disputatious – with those of other faiths, most of which he had studied in depth. On long trips these discussions went on for hours, all participants benefiting and, at the end of the trip, each feeling more kindly toward all other faiths.

He told jokes about his all-Irish ancestry and the effect of his name on other ethnic groups. He'd had many patients of Italian extraction, most of whom invariably misspelled his name, gave it an Italian pronunciation, and insisted that he was one of "their own," thus creating humorous and sometimes embarrassing situations.

Frank B. Stephenson, Denver; 62nd CMS President, 1932-33
February 1, 1875—September 5, 1951
MD 1907, Denver & Gross Medical College

FOR TWELVE long years Frank Stephenson was the Society's workhorse, as Editor of its *Journal,* 1919 to 1924, and as CMS Secretary from 1920 until he resigned in 1930 with a sigh of relief after a year of indoctrinating the new Executive Secretary. His relief was brief; in 1931 he was chosen President-elect by acclamation.

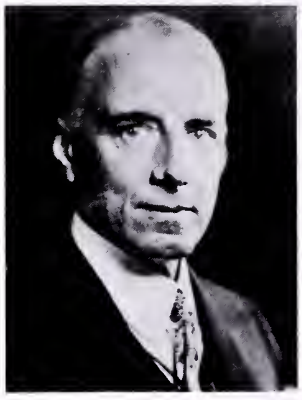
His normal dignified yet diffident manner was so gentle, his voice so soft, that some mistook him for the type small boys would call "sissy" – a grave mistake indeed, even if he was rather short and slender. Usually, if one asked his opinion, he would press his hands together almost as in prayer, carefully recount the pros and cons, think in silence a few moments and finally begin: "Well, . . . I think I should respectfully suggest . . ." However, if someone had pushed him too far or had violated his deep-seated concepts of right and wrong, his demeanor could reverse in a split second – as once when he threw a larger man bodily out of the office. Or the time a friend asked if he knew a certain physician who the friend feared was hurting CMS's reputation. The instant response was almost spit out: "Yes, that man is a parsimonious, pusillanimous pissant – and a disgrace!" That was the only time this writer ever heard rough language cross Dr. Stephenson's lips.

He was born in Indiana, attended Georgetown College, Kentucky, for two years, and finished premedical studies by correspondence while clerking for Indiana railroads and mining companies. After internship in Denver, he was physician for the old Colorado Yule Marble Co., but left Marble in 1917 to volunteer for the Army. He failed the physical, so he studied radiology for a year and then settled in Denver. His work in all fields was performed with calm assurance – in office practice, in helping develop x-ray departments in five Colorado hospitals, in guiding CMS through difficult depression years.

When obligations permitted, his evenings were usually devoted to fine music. He was an accomplished violinist and his wife was a fine pianist, until illnesses eventually prevented both from playing instruments. They entertained themselves and friends with classical solos and duets. They seldom missed Denver's offerings of symphonies, opera, and chamber music.

His outdoor hobby was trout fishing, and he was an expert. While he was CMS President each trip to a mountain or Western Slope meeting was timed to allow an hour en route for some "good hole" he knew. The non-fishing driver of the car always agreed – it invariably meant fresh trout for breakfast.

Gerald B. Webb, Colorado Springs; 63rd CMS President, 1933-34
September 24, 1871—January 27, 1948
MD 1893, London, and 1896, University of Denver



DR. WEBB was a "Mr. Versatility" among CMS Presidents and was known internationally as one of America's greats in the tuberculosis field.

Until well into middle age he was a fine athlete. He captained polo and tennis teams in tournaments, was a hunting companion of "Teddy" Roosevelt, and was one of Colorado's early mountain climbing enthusiasts. Although an amateur, he was an expert in botany, ornithology, paleontology – yes, and at chess and contract bridge. He starred in amateur theatricals including Gilbert and Sullivan operas. He devoured every kind of good literature, not only medical, and would commit to memory anything he felt was important. He seasoned extemporaneous talks as well as his prolific writings with quotations from medical greats, historians, biographers, novelists and poets. He loved poetry, from the early classics to Ogden Nash, from Shakespeare to Alice in Wonderland. He could recite most of the latter book, both prose and poetry, from memory.

He wrote books, scientific treatises, essays – on biography, medical history, tuberculosis. And he "prescribed" books for patients, knowing what would relax each patient both mentally and physically when complete rest was the foundation of tuberculosis treatment.

He was a native of Cheltenham, England, and before coming to America he held separate licenses in dentistry, medicine, and surgery from the respective Royal Colleges. In 1894 his first wife developed tuberculosis, and he was advised to take her to Colorado. She survived only a few years, and no doubt his loss sparked his unceasing research, now memorialized by the Gerald B. Webb Memorial Building on the University of Colorado Medical Center campus. Dr. Webb became a U.S. citizen in 1912.

Numerous honors came to Dr. Webb early as well as late in life, from a rare and public "I was wrong" in 1908 by the famed Dr. Robert Koch (who had called "impossible" a Webb-discovered means to isolate and examine a single TB bacillus) to the Trudeau Medal in 1939, from local and state presidencies to those of national specialty organizations, and honorary scientific degrees.

Whole walls of bookshelves in his large home could not hold all his books. Hundreds more were piled on chairs, desks and floors of his den and study. A visitor had to thread his way to avoid knocking down the piles, and every book showed a slip of paper marking where this omnivore of literature would soon re-taste a choice morsel.

Nicholas A. Madler, Greeley; 64th CMS President, 1934-35
November 27, 1881—February 6, 1959
MD 1904, Rush Medical College

"NICK" MADLER was a planner, a strategist, and an executive adept at picking the right man for each specific assignment, and as President he initiated a thorough reorganization of CMS that came to fruition a year after he left that office. He was long a power in the American College of Surgeons, as well as in CMS.

He and a few others had recognized a need for more responsive operations of this Society as the Great Depression waned and the public as well as doctors began to demand more service from CMS. He called for complete separation of executive and judicial powers within the Society, analogous to the U.S. government. He urged enlargement of both the Board of Trustees and the Judicial Council, members of each to serve overlapping terms and each body to have "guaranteed" state-wide representation. These and related proposals neces-

sitated re-writing the Articles of Incorporation, Constitution, and By-Laws, and revising long-standing House of Delegates customs. Much of it was finished in 1936, more in 1937, though state-wide Board of Trustees membership remained only a custom until a later revision.

Dr. Madler led reorganization and standardization of the old Weld County Hospital. This even involved bitterly fought suits in the courts, but its establishment as a publicly owned, combined indigent and fee-charging institution in which doctors were paid from tax monies for treating the poor, started a national trend that continues today and is still expanding.

In 1929 he was banquet chairman at the CMS Annual Session. He sat beside and introduced the speaker, a famed and elderly Colorado doctor, but one who was also known for his "lack of terminal facilities" when he had a captive audience. The speaker laid a 30-odd-page speech on the table beside the lectern while he offered "a few introductory remarks" – for almost an hour! Then he reached for his prepared speech. It had disappeared, and with a few wry comments on this mystery, he stumbled to a conclusion. Dr. Madler's sleight of hand had saved 200 doctors and their ladies from an additional dull hour. He swore to secrecy the few to whom he confessed his "sin," secrecy for the lifetimes of himself and that banquet speaker.

At its 1955 banquet CMS began the custom of awarding gold 50-year pins to members who reach that milestone in practice. Dr. Madler accepted for that first group with a brief but masterly summary of the philosophies that make for a doctor's true happiness.

Walter W. King, Denver; 65th CMS President, 1935-36
October 22, 1873—July 9, 1964
MD 1902, University of Colorado

HE PRACTICED in Denver the last 40 of his 90 years, but Dr. King always seemed more closely identified with Cripple Creek. There he started practice right after graduation. All historians we have consulted agree that he became the most loved man in Teller County, which around 1900 boasted 50,000 population. He was nominated for the State Senate in 1918, against his wishes, by Republicans in a solidly Democratic district. He refused to campaign in any manner – he was working night and day fighting the influenza epidemic with inadequate 1918 tools, while also fighting his own almost intractable asthma. Nevertheless, he was overwhelmingly elected, and served two four-year terms. Near the end of his second term he moved to Denver.

As a legislator he persuaded fellow lawmakers to drag Colorado's public health and industrial safety laws out of the 19th century. Later, as CMS President, he created the Colorado Medical Foundation, now one of his monuments. As a post-War-II AMA Delegate he helped lay the groundwork for eliminating the one-man rule of the AMA that had obtained for 20 years. On the doctor's 90th birthday former Governor and U.S. Senator Ed C. Johnson said: "No one man has done more good for more people than our fine friend, doctor, and statesman, Walter King."

Throughout his early professional life among rough miners on into his last days he was always the genuinely courtly gentleman. A joke he retold on himself is illustrative. He was asleep in his hotel at an AMA meeting when his roommate came in, quietly, after midnight. The slight noise and a call of nature combined to bring Dr. King out of bed and headed for the bathroom door, which had a room-facing, full-length mirror. The only light was from the transom above the door to the hall. Approaching his dim reflection in that mirror, Dr. King bowed, said "I *beg* your pardon, sir," turned to his left, and opened the hall door. That flood of light really woke him and in an instant his own laughter drowned out that of his roommate. Dr. King's sense of humor was delectable, especially when he was the butt of a joke.

He liked a nip of good bourbon when not "on duty," and it seemed to relieve him in evenings of the asthmatic wheezings that plagued him wherever he was until he was nearing 70. Then, lo and behold, he was found violently allergic to corn, which he had always liked in other forms, too. He gave up corn, switched to other potables than bourbon, and was almost free of respiratory problems the rest of his life.

Arthur J. Markley, Denver; 66th CMS President, 1936-37
January 11, 1874—March 20, 1955
MD 1903, Miami Medical College, Cincinnati

SOME WONDERED at this dermatologist's minute routine examination of the whole oral cavity, even when patients' complaints were unrelated to that anatomical area. Others of his colleagues knew that Dr. Markley had been a skilled dentist before he went to medical school, and they recognized that he was ahead of his time in early diagnosis and treatment of oral malignancies.

He was nationally acclaimed as a keen diagnostician and brilliant teacher. He reported the first case of pellagra in the Rocky Mountain west. He demonstrated for the first time in American medical history (and published it with a case report) the rare but important occurrence of purely local cutaneous sensitization of human skin.

A few folks thought him guilty of "snap diagnoses," but his instant across-the-room recognition of almost all skin eruptions was accurate. This attribute was probably due not only to fine training, study and experience, but also to his truly photographic memory. If asked to identify a quotation, he would tell you not only the name of the author, but the title and *page* of the book where you would find it. He may have read the book only once, years before.

Dr. Markley retained some old Southern mannerisms from his Kentucky upbringing. He had the erect bearing and a bit of the autocratic type of dignity and speech one associates with the story-book Kentucky Colonel. But outward characteristics belied the inner man – the man who hated to charge fees for his services and who never did if he even suspected the patient might be poor – the man who shed tears when a person he could not restrain insulted an employee.

Our records of his early years are scanty; he never discussed them. We know he prepared for specialization in several European capitals as well as in Cincinnati. He came to Denver in 1910 as a dermatologist and began both medical society work and teaching at once. A year later he founded the *Denver Medical Bulletin* and was its first editor. From 1912 until the late 1930s he was Professor of Dermatology and Syphilology at Colorado University, with a leave of absence while an Army Medical Corps Captain in World War I.

His major hobby was music, both as a listener and participant. He sang a fine baritone in Cactus Club presentations, and he played the violin and the piano. Sadly, he gave up both instruments too early in life, his fingers the victims of old x-ray burns from the days when doctors took too few personal precautions with this powerful medium.

W. T. H. Baker, Pueblo; 67th CMS President, 1937-38
October 4, 1871—August 2, 1956
MD 1896, Northwestern University

THE INITIALS stood for William Thomas Henderson, honoring forebears, but his closest friends called him "What The Hell Baker" which characterized his fearless disregard of personal attacks and criticisms.

Many of both were aimed at him in the 1920s and early '30s. He headed one of two bitterly competitive clinics in Pueblo; in a way there were three, if one also counts the then close-knit staff of the Colorado Fuel & Iron Co. hospital, where Dr. Baker had himself served from 1897 to 1910. For years he and Dr. Crum Epler, who headed the other private-practice group, seldom if ever spoke to each other. Then one evening in the mid-1930s both failed to appear when the Pueblo County Medical Society began its monthly dinner meeting. The meal was nearly over when in came Drs. Baker and Epler, arm in arm, grinning from ear to ear; they sat together and exchanged whispered jokes all evening. Others present that night wonder to this day what had happened; their questions went unanswered but a 15-year "feud" had suddenly and permanently ended.

Following internship Dr. Baker came to Pueblo and the CF&I Hospital, where he advanced to Assistant Chief Surgeon, but left it for private practice in 1910. In 1920 he helped found the Pueblo Clinic and Parkview Hospital. As CMS President his slogan was "Originate, Educate, Cooperate and Agitate," and he ramrodded preparations for two political battles then approaching their peak – one against chiropractors trying to equate themselves with MDs; one against the first serious national attempt to socialize medicine.

Both Dr. Baker and his wife loved practical jokes, if not harmful. As when they were harvesting her pet vegetable garden one year and he needled her as he dug up walnut-sized potatoes. "Try that row over there," she said. He did, and in wide-eyed wonder retrieved a bag of potatoes comparable to Idaho's best. That's just what they were; she had buried them the night before while he slept.

Or the time out-of-town doctors dropped into his office, one of them openly eager for a stout drink. Dr. Baker passed large shot glasses and a "very special bottle, just given me by a patient." The thirstiest guest didn't read the label or catch the host's wink toward the others but poured a full glass and drained it in one gulp. A split second later he leaped from his chair screaming for a "chaser." The label on the imported liqueur read "151 proof"!

Leo W. Bortree, Colorado Springs; 68th CMS President, 1938-39
March 26, 1883—December 17, 1970
MD 1910, Harvard Medical School

FROM GRADE school days he was determined to become a doctor. He did, and he was a successful internist emphasizing pulmonary problems, but he could have been a great teacher, accountant, business executive or author. Friends and co-workers knew this, but not from Leo Bortree. His life-long modesty approached self-debasement.

His self-typed letters were literary gems, clear and to the point in simple but exquisitely chosen language. Some would bring tears to any reader's eyes. More often they evoked belly laughs, for he loved to jest, even about serious matters if a joke helped refine a question or point up an answer. He "kidded" friends unmercifully, but always in good humor.

Dr. Bortree called himself a follower, not a leader, and not long ago wrote of his 80-plus years as "an unduly long record of trivia" and of his CMS presidency as one of "profound mediocrity." But leader he was, and beginning a few days after assuming that office he guided CMS through the most bitter battle in its history – the Society's campaign which persuaded Colorado voters to reject a constitutional amendment designed to equate chiropractors with MDs and to repeal public health and professional licensing laws.

His widowed mother, a school principal, brought him as a six-year-old to Colorado Springs from their former Sterling, Pa., home. Her influence and his frail childhood made him an avid reader. Before his teens he mastered science texts and many great classics, some of the latter in their original Latin. He headed most of his classes in prep-school, Colorado College, and Harvard. He was "CC's" football team physician when "Dutch" Clark was the state's first All-American. Later he was a 14-year member of the Athletic Board of Colorado College, and still later one of its Trustees and recipient of its rare Honorary ScD.

As a Medical Corps Captain in 1918 he admitted the first patient to "Army General Hospital No. 21," soon renamed Fitzsimons, and he designed, equipped and directed its first laboratory. By middle age Dr. Bortree had served 11 years as a CMS Trustee (nine of those as Treasurer), many years as vestryman of Grace Episcopal Church, and had chaired innumerable civic and medical committees. In 1947 he was back in CMS harness as organizer and first Chairman of the "Board of Supervisors" (now the Grievance Committee), setting a pattern copied by almost every other state medical society.

The story could go on and on, but in 1953 he said he was "getting behind the times; younger men are better prepared," so he retired at 70 and re-entered Colorado College for courses in geology and photography, his principal hobbies.

John W. Amesse, Denver; 69th CMS President, 1939-40
January 15, 1874—August 21, 1949
MD 1898, University of Michigan

NO WRITING could really mirror Dr. Amesse's cheery enthusiasms, his bubbling buoyancy, just as few professional entertainers could match the wit and the seriocomic stories that spiced his every lecture and conversation. Those talents plus his medical stature and civic leadership kept him in demand as a public speaker all his professional life.

He was born in Michigan of French-Canadian parents and earned his own way as an assistant postmaster while still in high school. After internship he joined the Marine Hospital Corps (now the U.S. Public Health Service). Within just ten years, he had served in San Francisco's 1900 bubonic plague outbreak, as Quarantine Officer for the Philippines, as Immigration Officer at Seattle, Honolulu, and at Ellis Island, in the New Orleans yellow fever epidemic, in charge of a Marine Hospital in Illinois, and as a special U.S. representative in Costa Rica.

In 1910-11 he prepared himself at Johns Hopkins and at Bellevue to practice pediatrics. Then he moved to Denver. Success came quickly both in practice and on the CU medical faculty. In 1917 he was back in uniform to head up Army Base Hospital No. 29, which represented CU and served in Europe. After that war he was soon again in the thick of Denver's medical life.

He served eight years as an AMA Delegate before his CMS presidency. In the latter office he helped found Colorado's Blue Shield and began a long service as its first President.

Dr. Amesse's military experience and his deft medical and civic leadership were invaluable in preparation against probable involvement in World War II. Throughout that war he headed the U.S. "Procurement and Assignment Service" for MDs, DDSs and DVMs in Colorado and also served one critical year as AMA Vice President.

Hundreds of friends remember meetings and banquets where presiding officers, spotting him quietly seated toward the rear, would without warning say, "I see Jack Amesse back there—could we hear from him?" Dr. Amesse would rise with a seemingly shy grin and with no preparation or hesitancy would proceed to convulse the audience with a brand-new story, usually a true one. Quick? He was instantaneous, at a formal affair, in a hospital corridor, or when you met him on the street. He wrote extensively on pediatrics and on tropical diseases, and still found time to organize a half-dozen Denver civic enterprises which continue the successes he built into them.

William H. Halley, Denver; 70th CMS President, 1940-41
March 17, 1882—October 24, 1965
MD 1907, University Medical College of Kansas City

FROM THE early 1920s until others tapped him for President-elect in 1939, "Bill" Halley was known as the "king maker." His opinions were so sought and followed that his approval, with that of perhaps a half-dozen others, was the *sine qua non* for every major action and election by the House of Delegates. This made him some enemies, but even they respected him.

Several CMS milestones are monuments to his foresight and political strategy. Among these were his co-leadership in the 1928-29 inaugural of a full-time secretaryship, in passage of Colorado's Basic Science Law, in defeat of the chiropractor-sponsored constitutional amendment in 1938, and in an expansion of CMS in 1946.

Late in his presidency he suffered a coronary attack. He recovered rapidly but his physicians kept him away from the 1941 Annual Session. Then in 1946 he was elected to his first of four terms as AMA Delegate, and through 1954 he was nationally influential. He was credited with launching Colorado's reputation as "one of the 'big three' states" (with California and Michigan)

in the AMA House, which together created a modern AMA public relations program, ended the 20-year reign of one man as sole AMA spokesman, and reinstated the AMA House as "boss" rather than servant of its Board of Trustees. His fearless, biting, but always humorous monthly column in the *Rocky Mountain Medical Journal* of those years was quoted nationally.

CMS Trustees said later when paying him special honor: "On occasion, Dr. Halley's pen and speech alike could be charged with acid when deep etching was needed, but when cutting into the center of a problem his actions and words always bespoke a kindly and understanding tolerance of all men's honest errors in judgment."

He was born in Chicago of Irish-descended Canadian parents. He had practiced briefly in Kansas City, northern New Mexico and Trinidad, and several years in Pueblo before World War I, in which he saw two years of U.S. Army Medical Corps service. After that war he moved to Denver and limited his work to surgery, gynecology and obstetrics.

Bill Halley was a stickler for fair play and the Golden Rule. His only known instances of holding a grudge were against those involved in quackery or in other deliberate violations of medical ethics. In such cases the language acquired in southern Colorado coal camps and the 1918 Army would pour forth in a torrent. He was a frequent and gracious host, liked a good poker game, and enjoyed a convivial evening at home.

Guy C. Cary, Grand Junction; 71st CMS President, 1941-42
October 11, 1884—August 7, 1965
MD 1913, University of Colorado

HE BEGAN three different careers before settling on medicine and eventually limiting to ophthalmology. Young Cary started as a railroader in his native Nebraska. Then he apprenticed himself to his grandfather, an expert wood carver, and followed that craft for 18 months. Forty years later he was still proud of the bannister in a Chicago cathedral, the carved mahogany in several Pullman cars, and an altar in a South American church that he had "done."

Next he was a graduate electrical engineer from the University of Illinois. Soon thereafter he re-entered the same school as a pre-medic. A year later he contracted TB and came to Colorado to recover. Later he started college all over again as a pre-medic at Boulder. A Denver General internship and special study of the eye in Philadelphia followed his MD.

He practiced in Boulder until called to Denver in 1917 as an Army Aviation medical examiner. Late in 1918 he moved to Grand Junction where he and his wife lovingly reared and educated four boys and two girls, all adopted as babies.

His garden and orchard, aviation medicine, and his constant vigilance to see that the local hospital staff maintained high standards of patient care and ethics – these were his hobbies. He was known in the 1950s as the "toughest" member of the CMS Grievance Committee, to which he was re-elected many times.

His wife's hobby was genealogy. Having researched her own family history back to the Revolutionary War, she started on the doctor's ancestry, proud of his Scotch and Irish background. One day she stopped and seemed utterly stricken. As Dr. Cary explained it later, roaring with laughter, "She'd just discovered that my great-grandfather was a Turk who changed his name from Karra to Cary when he settled in Ireland, and that he'd had a Chinese grandmother. She can't see why, but I'm proud of it."

Dr. Cary was deeply religious, and he was a strong supporter of the Calvary Bible Church. If he detected shady practices, he would face the culprit, be he physician, hospital superintendent, lawyer, legislator or state Governor, and brand him with non-profane but blistering invective. If it cost him popularity, so what? Other ophthalmologists were shocked when Dr. Cary attended an entire convention of optometrists "to find out what they know and don't know." He concluded: "they're all right when they limit to measurement, as too many don't, and when they don't call themselves doctors, as too many do." The shock subsided.

Ralph S. Johnston, La Junta; 72nd CMS President, 1942-43
January 4, 1887—December 3, 1952
MD 1912, Rush Medical College

THE NATION was deep in World War II when Ralph Johnston was installed as CMS President, and perhaps twenty per cent, although later many more, of Colorado's physicians had donned uniforms and were far away. Those remaining were busier than they had ever been – including Dr. Johnston.

The records indicate that he welcomed his election but that he viewed the presidency differently than any others before or since. He declared himself too busy to attend meetings of the CMS Board of Trustees or important committees, too busy to answer letters from other CMS officers or the AMA. By telephone from La Junta he directed the Vice President to make all presidential committee selections and appointments. Official mail reaching him was sent back to Denver for others to answer. The able Vice President and the equally able Board of Trustees Chairman (a Past President) shouldered most presidential duties that year.

Dr. Johnston was a successful surgeon although some of his stubborn habits raised eyebrows. Not until the mid-1930s did he use gloves and mask when operating. "If you scrub well enough and don't sneeze this is all right," he insisted. Once he heard that some CMS officers were in the hospital and he called them into his operating room – (in their business suits!) to watch him operate – he was doing a mastectomy. One of them, then President of CMS, sharply warned the surgeon that his neglect of modern asepsis laid him wide open to malpractice claims. Perhaps it was that encounter which resulted in new procedures that were soon evident.

He was never known to refuse a house call in La Junta, and few were made in daylight because he usually stayed at the Santa Fe Hospital from dawn to dusk. His family seldom saw him; he left home before they were up, ate his main meal each noon at the hospital, and when he reached home in the early evening it was to grab his routine "supper" of crackers and milk before he was off on house calls.

He was a Kansan by birth and education until he went to medical school in Chicago. He interned at the Kansas City General Hospital and then moved to La Junta as house surgeon for the AT&SF Railroad Hospital. He became Surgeon in Charge in 1919.

His consuming hobby was the Boy Scouts of America. He helped start, and always supported, the La Junta troop, which became famous as "The Koshare Indians." Dr. Johnston received many awards from the Scouts, topped by the "Silver Beaver."

George P. Lingenfelter, Denver; 73rd CMS President, 1943-44
November 1, 1873—August 11, 1967
MD 1897, University Medical College of Kansas City

THROUGHOUT 66 years of practice his patients loved him, and he was the nation's senior dermatologist when he retired on his 90th birthday, but at heart he was always a military man. He had a degree from the Missouri Military Academy before he studied medicine. As a young doctor he was in the Spanish-American War. He volunteered again in 1917, this time for the Navy. He came out of that war a Lieutenant Commander, USNR, and enjoyed periods of active duty until 1930. He tried every strategem to get active duty in World War II (at age 69!) and shed tears at the Navy's repeated "No."

This Missouri son of a Confederate veteran was both a white-hot American patriot and a courtly Southern Gentleman. On annual drives to New Mexico medical meetings he always pointed out where an extension (had one existed) of Mason and Dixon's line would cross the Colorado highway. Yes, he was from *southern* Missouri!

Dr. Lingenfelter was an ardent organizer. He persuaded CMS in 1931 to invite other states to form a Rocky Mountain Medical Conference and to co-sponsor Colorado's medical journal as a Rocky Mountain venture; then he annually visited those societies' meetings, and a few years later both dreams came true. He persuaded a Denver mayor to install in Washington Park an exact copy of the famed Mt. Vernon, Va., formal garden, for which he supplied blueprints. He steered CMS through a difficult war year, and only two weeks after a coronary attack he left the hospital to deliver his closing presidential report in 1944.

For 20 years he had directed Denver's Steele Isolation Hospital. There he developed an ultraviolet ray method of sterilizing the mucosa of diphtheria carriers so those unfortunates could be safely released. There he also led the total-population-vaccination efforts during the 1921-22 black smallpox epidemic. His expertise covered all contagious diseases, not just dermatology.

He originally left Missouri because of asthma, and was free of it in Denver until, years later, he resumed horseback riding. Tests then available proved his allergy to horse dander. But he had other hobbies – hunting, target practice in his basement pistol range, and the old telegraph key on his office desk which he loved to use and to "talk" with patients who knew the Morse Code. Many did, since he was a long-time railroad consultant.

Nearing 94, he was again donning his tuxedo for a Country Club dinner when he lay back on his bed and slept away from a cardiac arrest.

Edward R. Mugrage, Denver; 74th CMS President, 1944-45
April 12, 1885—March 4, 1958
MD 1913, University of Colorado

HE WAS "Uncle Ed" to every Colorado Medical School graduate from the mid-teens until his death. Probably no Colorado teacher is remembered with such affection by two generations of doctors.

He was not only a brilliant pathologist and teacher; he was also a chemist, a public health scholar, an inspiring writer, a trusted consultant and, above all, a true friend of man and of all living things. He was dedicated in the finest sense of that term, giving his absolute best every time, day or night, to anyone who sought his help, with never a thought of the cost to his own welfare. In later years he seemingly never understood why honors were heaped upon him, but everyone else did.

Ed Mugrage was born in Leadville, the son of a pioneer Colorado doctor. While a child, bilateral mastoid surgery after scarlet fever left him with a lifetime 90 per cent hearing loss. Yet by age 23 he had an MS in chemistry from the University of Denver and was chief chemist for the Great Western Sugar Co. Then he started medical school, and right after internship was appointed Instructor in Pathology. About 1920 another close call with the Grim Reaper left him with a permanent intention tremor of his extremities and his voice. But these handicaps could not stop him or even slow him down for long. In 1927 he became Professor and Head of the Department of Clinical Pathology, and until 1940 he was also head of the school's Public Health Department.

Any new student or visiting doctor, watching Dr. Mugrage for the first time, would shudder to see his trembling hand choose a syringe as he looked for a vein to puncture. His hand would quiver above the site; then – one zip – he had the vein, perfectly. He almost never missed on his first try. He must have known his tremor's timing to a split second.

As CMS President, when U.S. forces were nearing World War II victory, he pushed post-war planning to help returning doctor-veterans re-establish civilian practices.

He was a one-man alumni association, long before the formal CU Medical Alumni Association was formed in 1950. He personally kept a card index of all medical graduates, with details about each man's career and current address, and he knew almost every former student by name whenever they met, no matter how many years had passed. He officially "retired" in 1953 but immediately took over direction of the Belle Bonfils Blood Bank. In 1969 the Alumni Lounge at the Medical School was named for him as a permanent memorial to "Uncle Ed."

George A. Unfug, Pueblo; 75th President of CMS, 1945-46
Born November 2, 1900
MD 1926, University of Colorado

HE MISSED the Society's 1944 Annual Session to attend an important Chicago meeting, and while there he was asked by long-distance if he would accept election to the CMS presidency. He could hardly believe it and called himself too young, but finally agreed and did become one of the younger presidents in CMS history.

George is a native of Walsenburg. While an intern in St. Louis he became engaged to a lovely girl of Deep South ancestry. Her neighbors were shocked: "How awful! That boy Mary is going to marry – his parents were *German,* and, what's worse, he is a *REPUBLICAN*!! He was and is. He was his party's county chairman when a reporter sought his comment on F.D.R.'s proclamation moving Thanksgiving Day to an earlier Thursday. "I suppose the next thing he'll do is change Christ's Birthday" was George's reply, which hit front pages from coast to coast.

He gave time to civic activities but primarily his career has been that of a dedicated doctor and a progressive planner for medicine. Five years of general practice and a two-year preceptorship in radiology preceded his practice in the latter specialty. From the first, he was active in local and state medical societies. In 1940 he helped stop Blue Shield (then only in Denver) from becoming statewide, but five years later as CMS President he outlined how changed conditions had reversed his opinion, and he urged immediate expansion of the plan. His push put it across.

As President, he wrote monthly to every CMS member in the armed services, participation that had been denied him on physical grounds, and he directed practical help for those returning from the war. He pushed new CMS expansion and promoted the famed Raymond Rich survey of medical public relations. He helped found the "Conference of Presidents" of state medical societies which goaded the AMA out of sluggishness, and later he served eight years as AMA Delegate, one of the team which restored AMA House authority over subsidiary bodies.

Where dignity was appropriate, George was its essence. Where a salty crack would do better, it was on the tip of his tongue. One day an angry debate in the AMA House was almost out of hand; George sauntered to the podium and brought down the house in a roar of tension-breaking mirth by calling himself a dirty name. Many CMS members can never forget the smokers where this lanky, Lincolnesque and seemingly awkward figure in an outlandish costume performed "The Man on the Flying Trapeze," or outdid professional entertainers in high-kicking dances.

He retired in 1966 but completed a second six-year term on the State Board of Medical Examiners through May, 1971.

Archer C. Sudan, Kremmling; 76th CMS President, 1946-47
Born August 15, 1894
MD 1926, Rush Medical College

DR. SUDAN'S administration featured a sweeping CMS public relations program, including the first Board of Supervisors (now the Grievance Committee), wide expansion of Blue Shield, birth of the Code of Cooperation with news media, and much more. At first the AMA hierarchy didn't like all this, or him! But a year later the AMA House of Delegates voted him the highest honor ever awarded a family doctor: its first gold medal as "General Practitioner of the Year." Overnight, Archie Sudan's broad grin and the life history of this physically huge but truly modest man were on the front page of almost every U.S. newspaper.

"They must have made a mistake; it just can't be true," he said when notified by long distance phone from the AMA's First Clinical Session in Cleveland. Finally convinced, he drove

through a blizzard to Denver and for the first time in his life boarded an airplane. The next day in Cleveland, as one national science writer put it, he "stole the whole show. . . . He is the medical story of the year."

Born on a South Dakota farm, he earned his way as a barber and a summer farm worker through the University of Chicago, to a BS and MS, winning a scholarship to Rush. Then overseas as a World War I machine gunner, then medical school where he taught and did research. He had an assured career on the Rush faculty as assistant to the famed Dr. A. J. Carlson.

Kremmling, where he took a fishing vacation, was 57 miles from the nearest doctor. When young Dr. Sudan saw those medical needs he wired Chicago for a year's leave of absence, and a year later wired his resignation. For the next 21 years he was the most loved and respected man in Colorado's Middle Park, ministering to a mountainous rural area larger than Rhode Island. Books could be written (long magazine articles were) about his medical and civic services in Kremmling, about his off-the-cuff speeches, his humor, his expertise with rod and gun and camp cooking.

For ten years he never missed a Denver meeting of the CMS Board of Trustees, regardless of road conditions, nor did he while President, though he was on crutches that summer from a knee injury. He moved to Denver in 1948, retired later, and now lives in Lafayette.

Whenever he needed on-the-job rest, he could doze off in seconds in any comfortable chair, his teeth gripping a lighted cigar. His snores would rattle the windows and about every fifth snore he would take another long puff, still sound asleep. Unbelievable? There were many witnesses!

John S. Bouslog, Denver; 77th CMS President, 1947-48
Born October 13, 1890
MD 1916, University of Colorado

"NO COMMEMORATIVE plaque could possibly list John Bouslog's self-sacrificing services or his accomplishments. A few of them are indicated by the unsolicited positions of leadership and honor conferred upon him over the years: . . ." So begins the plaque under his portrait in the CMS building's main conference room, dedicated to him in 1962.

Since 1917 he has never been "out of a job" in organized medicine. If the assignment meant just one day, or years, he started right then, and button-holed friends to help. "The object is this: . . ." he would say, outlining the plan; finally, "O.K. then, let's go to work." No job was too menial, no responsibility too heavy. He expected that same loyalty to the profession from others; his Presidential Address tore into lax ethics, overcharging, apathy and laziness.

Friends who shared hotel rooms with CMS Presidents on trips "elected" John Bouslog and Archie Sudan as "Co-World-Champions of Snoring." All agree that Sudan's was loudest (see *that* sketch) and Bouslog's the most fearsome – he would stop breathing, so long that anyone would think he had died, but eventually an implosive intake always started a new cycle!

Here are a few of John's biggest jobs: CMS Constitutional Secretary 12 years, three as Acting Executive Secretary during the latter's military service; Clinical Professor of Radiology at CU 12 years; four years (one as Chairman) on the Board of Chancellors, and later President of the American College of Radiology; co-founder of Colorado's Blue Shield and its Treasurer for seven years, President of the Radiological Society of North America; Board of Directors of the American Cancer Society for six years and President of its Colorado Chapter; CMS leader in a dozen legislative battles. The list goes on and on. But he is proudest of Colorado's nationally copied "Code of Cooperation." He conceived it early in 1947, sold the idea to CMS, to hospitals, press and radio (later, TV), and presided over its birth that autumn.

Born in Illinois, John came to Boulder and CU as a pre-medic. One year in medical school he tested water and food supplies as Acting State Chemist. X-ray captured his interest while in general practice in Boulder, so when he was physically rejected by the Army in 1918 he moved to Denver to specialize.

He retired, officially, a few years ago but still.(1971) gives half-days to the American Medical Center and time to CMS committees. His flower garden is now his major "specialty."

Casper F. Hegner, Denver; 78th CMS President, 1948-49
April 10, 1879—July 13, 1960
MD 1902, Ohio Medical College, Cincinnati

HE COMPLETED the four-year medical course in three years and graduated near the head of his class; as a sophomore he received the annual faculty award as the outstanding pathology student. The day after he finished internship he left for a year's postgraduate study in Europe. Three years later he was one of Cincinnati's leading young surgeons as well as pathologist for two large hospitals. Several Ohio "firsts" were credited to him, including frozen section diagnosis, and the Matas aneurysmorrhaphy. Dr. Hegner was receiving high honors by his early 30's.

But in 1913 he left a huge practice and his native state to "chase the cure" in Colorado. When health returned he resumed private practice in Denver and started "up the ladder" of the CU faculty, becoming Professor and Head of the Department of Surgery in 1936. He was a leader in a dozen surgical organizations and founder of several.

Dr. Hegner was among the first in Colorado to specialize in thoracic surgery. Yet from that specialty he constantly importuned students and interns to experience a period of general practice —"first, before doing p.g. work in any specialty; don't do it the way I did!" He emphasized this also in his CMS Presidential Address and in dozens of other papers.

He acquired the personal dislike of some colleagues and paramedical associates, whom he tried to drive, sometimes pitilessly, toward the perfectionism that was his own goal. But he drove himself even harder and in conversations with close friends spoke more of even his minor failures than of his successes. "Dammit all, I should have done better" – and he would curse himself roundly for any result short of perfect.

Perhaps that tenacious inner drive was his undoing, for midway in his term as CMS President he suffered a major coronary attack. Since urgent CMS business was waiting, the Board of Trustees declared Vice President Lester L. Ward of Pueblo "Acting President" during Dr. Hegner's illness. But recovery was slow and never complete. His personal physicians begged Dr. Hegner to resign the presidency but he refused, and against their advice insisted that CMS staff members report to his bedside daily. When he sometimes arbitrarily reversed decisions of the Vice President, the Chairman of the Board of Trustees had to arbitrate. Some historians have blamed that situation, at least in part, for laying the foundation for power struggles between Presidents and Board Chairmen that developed a few years later.

Fred A. Humphrey, Fort Collins; 79th CMS President, 1949-50
Born March 16, 1896
MD 1921, University of Nebraska

"ENJOY YOURSELF – it is later than you think." "Replace competition with a little bit of contemplation."

Fred Humphrey emphasized, re-emphasized and elaborated those two quotations from the book "In a Chinese Garden" in his CMS Presidential Address, urging doctors to guard their own health that they might better care for patients. The quotations disclose a part of his philosophy, but only a part because they apparently belie his own life history. His every hour, day, and month seem to have been carefully scheduled. Throughout a busy general practice he has found time not only for those multiple extra services that organizations always request of busy men, but time also for frequent if brief refresher courses, daily study, faithful attendance at medical meetings, board meetings of a bank and a national corporation; and even some foreign travel.

How he has done it all even he himself might find hard to explain. Maybe as a child he vowed to overcome the implications of his home town's name: Broken Bow, Nebraska! When he finish-

ed high school there he played professional baseball and taught school for a couple of years while debating between law and medicine as a career. With a year of combined Army and medical school in World War I, science won out over forensics but his bent for peacemaking between sometimes contentious colleagues evinces judicial talent.

He has always loved athletics, and as a young physician in Fort Collins he twice won tennis championships. He is a loyal supporter of CSU and its teams, but at heart he is still a Nebraskan who maintains lifetime wagers with CU alumni on NU football games.

In the AMA as in Colorado, Fred Humphrey has been "Mr. Rural Health." He founded the CMS committee on this subject, constantly seeking improved farm health and safety programs. He was on the AMA Rural Health Council for 16 years, his last three as its chairman. He was a Colorado Blue Shield Trustee for 14 years. He helped found and lead the Colorado Chapter, AAGP, and has served as its national Vice President. Also, for the last quarter century he was almost always on two or three CMS committees plus holding hospital staff and county society offices. His speeches promoting rural health and pre-paid medical care attracted national attention.

In a rare spare evening en route home from a meeting he and his wife entered the Wyoming contract bridge tournament, and won it. Yes, Fred always saves a little time to enjoy himself, and quietly to think, and contemplate.

Ervin A. Hinds, Denver; 80th CMS President, 1950-51
March 20, 1899—March 27, 1966
MD 1934, University of Colorado

AS CHIEF Surgeon of the D&RGW he could command a luxurious private car to any city that railroad served, and a pass on any connecting line, but as CMS President he'd received a government wire urging his presence the very next day at a civil defense meeting in San Francisco. So he had to fly. The CMS alerted the airline as to Dr. Hinds' positions, so service was extra courteous, but on San Francisco arrival it developed that his luggage had flown to New York! Luckily for all concerned, Erv's sense of humor never deserted him.

If a group of leading Denver doctors huddled over a knotty problem —surgical, legislative, economic or what-not — you would likely hear someone say "Let's ask Coach; get Coach's ideas." No one need ask who was meant; Erv Hinds quickly, and always fairly, solved problems in many fields besides athletics.

He had been a terrific athlete. After high school in Brighton and 18 months in France with the tough U.S. artillery, he went to Colorado A&M College (now CSU) and won both good grades and 10 major-sport letters: four straight years as Rocky Mountain Conference heavyweight boxing champion plus baseball, basketball, and football — an All-Conference end. But he wanted to be a surgeon so he coached seven years, three for high schools and four as coach and Athletic Director at Colorado School of Mines. He saved enough to see him through medical school, internship and residency, and was 37 when he hung out his first shingle. He was a lifetime left-hander and while this confused many an intern and nurse, they all learned from his technique.

The second World War took him to England as Chief of Surgery of the 154th General Hospital. Military service inspired the CMS Presidential oath of office he recited, founding a custom rarely omitted by successors.

He radiated good will, and respected honest opinion even when he strongly disagreed with it. He accepted high offices with humility, in CMS, in many other societies, and the 1947 appointment as Rio Grande Chief Surgeon, but each time sincerely questioning his own ability to "do a good job." Those who really knew "Coach" knew he could and would, and savored his firmly effective but kind and calm guidance.

As a doctor his boxing skills were used to judge or referee inter-school and "Golden Gloves" tournaments. He loved golf, hunting and fishing and, each fall, our state's major football games.

Harry C. Bryan, Colorado Springs; 81st CMS President, 1951-52
December 24, 1893—March 18, 1967
MD 1931, University of Colorado

HE WAS 40 when he began practice in 1933 but already had been closely associated with the medical profession for many years. He began as a pharmacist in 1915 with a PhG from the University of Texas, his native state. He married a year later, but his wife soon developed tuberculosis. They moved to Colorado Springs and he became pharmacist at the "Busy Corner Drug Store." Later he was a traveling representative of Eli Lilly & Co., knew hundreds of doctors, and wanted to become one himself. Accordingly, he saved and invested astutely to finance that ambition. Then he resigned the job, sailed through premedical courses, medical school, internship and a surgical residency with flying colors, and settled again in Colorado Springs.

Early in Dr. Bryan's practice, an alcoholic patient already on the table for an emergency appendectomy somehow roused from the ether and leaped to the floor, running. Dr. Byran and the anesthesiologist chased him twice around the OR, tackled him, football style, applied more ether, and completed the operation. The recovered patient remembered nothing of the event, but both doctors felt they had set some sort of record.

Harry was an instant natural for medical society office. He was already known and respected by Colorado Springs' physicians as a clear thinker on medical economics, legislation and public affairs. He budgeted his time as carefully as he did his office and household expenses. He never charged high fees nor tried to force collection from a delinquent patient (and openly disapproved of those who did), but he was financially successful, largely due to his thrift and his talent for investing wisely. He had been in practice only a few years before he had held every office in the El Paso County Medical Society plus assignments to important state committees. He served two terms as Vice President of CMS, and one as Vice President of the American College of Surgeons.

Outstanding Bryan characteristics were his abiding faith in God, in the medical profession if doctors would only work together better, and in the American system of government – plus his burning zeal for improving the profession and government at every level. His Presidential Address called for a massive movement for better medical, health, and welfare laws, and for state and national legislation to stop waste and to streamline administration.

Harry was an expert dry-fly fisherman who never used a worm or lure that didn't "give the fish a fair chance." He loved foreign travel when his wife could accompany him; their last cruise ended in Suez where he died from a sudden and massive cerebral hemorrhage.

William A. Liggett, Denver; 82nd CMS President, 1952-53
Born June 2, 1901
MD 1938, University of Colorado

HERE IS another CMS President who was in his 40s before he began practice and who pursued a different career before studying medicine. After earning his BA from the University of Illinois (an MA came a little later), he taught in high schools for nine years and helped finance his brother, Bob, through DDS and MD degrees, internship, and residency. Once in practice, Bob reciprocated for Bill's medical education. They practiced internal medicine together for part of 1942; then both went to war. Bill's service included nine months in the tough China-Burma-India theater.

Since returning to Denver in late 1946 Dr. Bill Liggett has had scarcely a day free of CMS responsibility. He was an early Secretary of the Board of Supervisors (now the Grievance Committee) and when that term ended he was chosen President-elect. Obviously surprised, and feeling unprepared for that office, he undertook intensive study of his up-

coming position. Then just a few days before his installation his wife presented him with their belated fourth child, a third daughter.

While still in the glow of this late but welcome fatherhood, Bill was astonished and taken aback an hour after his installation when the new Chairman of the Board of Trustees tapped him on the chest and said, "Now, remember – you're just the President; I'm Chairman of the Board and I call the shots." A two-year struggle began that day, though since 1949 (see Hegner sketch) chairmen had occasionally used powers that CMS By-Laws gave the President.

Bill was naturally sweet-tempered, rather retiring and full of self-restraint, so he "turned the other cheek" for a few months as factions developed in the Board of Trustees and fought over minutiae as well as real issues. But he was pushed too far. He took the problem before county medical societies, warning of possible CMS disruption, and closed his administration by initiating House of Delegates action. The House then ordered an independent year-long investigation.

Later, Bill Liggett was one of those who urged CMS to purchase its own building and he inspired several other Past Presidents to join him in furnishing and equipping the special President's Office which each incumbent since 1961 has enjoyed.

Bill Liggett is now (1971) serving his 15th year on the busy Medicolegal Committee – his 13th year as its Chairman and chief guide of CMS's constant work with the Colorado Bar Association.

Claude D. Bonham, Boulder-Denver; 83rd CMS President, 1953-54
Born November 12, 1900
MD 1927, University of Colorado

THE CMS Presidency probably cost Claude Bonham more sleepless nights, frustrations, and personal as well as official anguish than any other incumbent in the memory of those still living. His administration inherited a discordant Board of Trustees which continued its already year-long bickerings despite sharp admonition by the House of Delegates – important Board actions still influenced by men determined to strip the President of his authority.

Then, only two months after he was installed, Claude lost his partnership in the Boulder Medical Center, a majority of the partners in that clinic feeling that he devoted too much time to the Medical Society. He certainly had been a hard worker both in the Boulder County Society and in CMS; he had held all the offices in the former. He was on the CMS Board of Trustees in 1942 when he entered the Army as a Major. He saw duty in North Africa, Sicily and Italy until hospitalized with rheumatic fever early in 1945. CMS had again elected him a Trustee in 1948, then Vice President, then President-elect. He was the first CMS President to pilot his own airplane, an Ercoupe, which he flew to many Colorado meetings and to AMA Sessions in Chicago and New York.

Out of his Boulder clinic position early in his presidency, he moved to Denver and, until a new Ob-Gyn practice developed, devoted almost full time to CMS. He found his hands tied most of the year by disruptive forces within the Board of Trustees, but his testimony before a special investigating committee (see Liggett sketch) and a pull-no-punches-and-let-the-chips-fall-where-they-may report to the House of Delegates precipitated a reorganization and clarification of authorties. It was after his presidency that his real stature and the courage behind that benign smile and that calm slow voice were recognized.

Claude is a Missouri native and had both a Missouri University BA and a Colorado University MA before medical school and internship in Denver. He did general practice in Boulder and special study of Ob-Gyn, then participated in forming the Boulder Medical Center group. He was active in specialty societies and served two years as President of the American Cancer Society's Colorado Division.

After his CMS Presidency he continued in solo Ob-Gyn practice in Denver until early in 1969 when he gave up that day-and-night race to become Medical Director of the Kansas Blue Cross-Blue Shield Plans in Topeka.

Samuel P. Newman, Denver; 84th CMS President, 1954-55
Born July 27, 1907
MD 1932, University of Texas at Galveston

PRIDE IN his Texas Birth and background and in the wee touch of Cherokee Indian blood in his ancestry were always evident; so were his tireless work and his ambitions. Very early in his career Sam Newman was acknowledged to be a brilliant orthopedic surgeon and was highly respected by his fellow orthopedists in Denver. His labors, teamwork and judgment in increasingly important CMS assignments, especially in legislative campaigns and in scientific program management, brought commendations by the time he was 30. He chaired several committees and became widely known as "a fellow who gets things done."

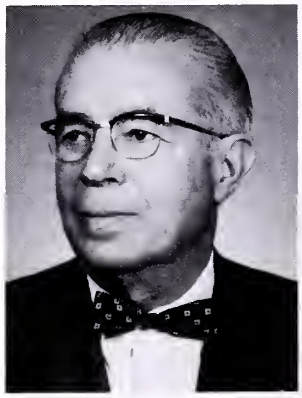
In World War II he served the Navy as a Lieutenant Commander with Marine air units in both California and the South Pacific. After that war he returned to Denver and private practice and was again active in CMS affairs, but in a more authoritative manner, more like the captain of a naval vessel. From 1949 to 1951 he was Chairman of the CMS Board of Trustees, recognized as both effective and rigid. Two years later, as President-elect, he gave his support to the Board Chairman rather than to the then current President. However, at the following CMS Session, just as he was to be installed as President, the House of Delegates revised a number of CMS procedures; among other things it directed the Board always thereafter to elect the President as its Chairman.

Previous Presidents had requested colleagues to accept appointments to committees that were appropriate to their interests; Dr. Newman simply notified doctors of assignments he had selected, stating that it was their duty so to serve. Many did, but others were only offended. Various sequelae of the two preceding years and a rash of unfavorable newspaper publicity regarding CMS helped to make the first months of his presidential year stormy. Eventually most of those concerned "cooled off" gradually, and the last half of his year saw smoother sailing.

In 1952 he was appointed to the AMA's Council on Scientific Assembly, in charge of programs for AMA Annual and Clinical Sessions, and he served 11 years, winding up that work as Chairman of the AMA Council.

More than one personal tragedy left deep scars on his life. The latest, in 1966, saw him hit by a speeding car while he was a pedestrian. Both his legs were mangled, and he was hospitalized more than a year. He has not yet (1971) fully recovered, and it is indefinite as to if and when he might resume practice.

Robert T. Porter, Greeley; 85th CMS President, 1955-56
Born July 25, 1904
MD 1931, University of Chicago



BOB PORTER was a medical society pacifist who tried manfully to avoid personal controversies yet found himself embroiled in several major ones. Only two years after he started practice as an internist with the Greeley Clinic, he and several others in that group were suspended from the medical society for alleged solicitation of patients; a year later they were all re-admitted.

Thirteen years later, in 1951, the House of Delegates unanimously elected Bob Porter to a three-year term on the CMS Board of Trustees. At that time the whole Board examined, monthly, every transaction by the CMS fiscal officers, no matter how small the item; meanwhile the Board's work in all fields was increasing and its meetings were lengthening beyond reason. After a year of this, Dr. Porter proposed creation of a Finance Committee within the Board, to pass upon dollars and cents minutiae and report only totals and major transactions and financial proposals for Board decision. This was done. The first Finance Chairman? — the proposer! And it is doubtful if anyone before or since so ferreted out every detail down to the last postage stamp.

But before long a schism grew within the Board of Trustees and continued for almost three years, as sketches of preceding presidents indicate. Contending factions fought about everything including financial reports, with the Finance Chairman, fiscal officers, and staff usually caught in the middle. Early in 1954 Dr. Porter knew he was to be his county society's nominee for CMS President-elect that fall; he absented himself from some Board meetings that year, trying to keep neutral and avoid involvement in controversies. Dr. Porter's election was a close one.

Penny-pincher though he was in both personal life and medical society work, his Presidential Address proposed revival of the plan for CMS to build or buy a home office building. Ample reserve funds were available and had grown under his guidance, but six more years passed before the Society acquired its East 18th Avenue property.

Bob was born and reared in Illinois. He interned at Chicago's Saint Luke's Hospital, but otherwise all his medical education including his residency in internal medicine and gastroenterology was at the University of Chicago. He served in the South Pacific with the Army's 31st General Hospital and there became a personal friend of the eminent author, James Michener. At home in Greeley, Bob is a gracious host with many a humorous anecdote from his practice, his golf, and his South Pacific experiences.

George R. Buck, Denver; 86th CMS President, 1956-57
Born October 30, 1904
MD 1931, University of Colorado

EVERY HALF hour in his living room an authentic ship's bell (clock, to landlubbers) sounds the time, and any ten-minute conversation with George Buck discloses his love of the U.S. Navy. His World War II service started as doctor for a ship that was filled with ammunition and high-test gasoline to resupply combat vessels and planes – in the Jap-submarine-infested areas of the Pacific. Nerve wracking? Yes, but he came home without a physical or emotional scratch. Now he is retired from the Naval Reserve as a Captain.

In early CMS committee assignments he displayed a vigor and a loyalty to CMS principles that led to the chairmanship of the old Public Policy Committee which, until creation of Administrative Councils, carried policy authority exceeded only by emergency powers of the Board of Trustees. At that time some of his rulings were unpopular with many colleagues, but his Farragut attitude of "Damn the torpedoes; go ahead!" advanced CMS public relations, and his judgment was later vindicated and widely approved. In 1940 George Buck, John S. Bouslog, and John W. Amesse (then CMS President) were the original incorporators of Colorado Medical Service (Blue Shield) when only a few Denver medical leaders and virtually none outside Denver foresaw its potential.

George is a Kansas native and proud of humble beginnings. His education was a financial struggle, and after internship he began general practice with part-time service as a Denver Police Surgeon. After a few years he limited to general surgery; after the war and some postgraduate study he limited to proctology.

Full of ready wit and an inveterate jokester, he nevertheless is by nature a fighter – against the UMWA's denial of free choice of physician to its Welfare Fund beneficiaries; against even larger labor unions threatening to carry a UMWA suit against the medical society to the U.S. Supreme Court (a suit CMS won, dismissed without appeal); against insurance companies charging excessive physicians' liability rates. George's proudest accomplishment was his 1956 founding of the Empire Casualty Co. as a physician-owned firm which forced national companies to reduce their rates.

As a member of the State Board of Medical Examiners both before and after the war, George fought quackery, fought for stricter enforcement of existing law, and as President of that Board chaired a national commission which wrote and promoted a strong uniform medical practice act which many states adopted.

Gatewood C. Milligan, Englewood;
87th CMS President, September-December, 1957
Born July 23, 1907
MD 1933, University of Colorado

(1968 photo)

ALL OMENS were good when "Gate" Milligan assumed the CMS presidency that September. Here was a man with a wealth of organization experience behind him, a man surely approaching the zenith of a fine career, a leading general practitioner who held the respect of specialists and reciprocated that respect, a deep student of socioeconomics and medical public relations, and the first President in CMS history to represent a Denver suburban area. He had proved himself to be both a fine team worker and a leader who always saw to it that the "team" received the credit. He was full of clean fun and youthful vigor and to all appearances in the pink of health. His Presidential Address was a masterful analysis of the rising cost of health care and a stirring plea for CMS to slow that trend.

The blow struck less than three months later while he was attending an AMA meeting in Philadelphia. He was recuperating from what had seemed to be a common cold when he suffered a minuscule, but significant, pulmonary hemorrhage. Latent tuberculosis, diagnosed more than 30 years earlier but never active, had erupted. A week of examinations and consultations back home forced the decision that he must resign himself to several months in the hospital and then more months of partial incapacity – so he resigned his presidency on December 27, 1957.

His parents had moved the family to Colorado soon after Gatewood was born in Shannon, Miss., settling first in Victor, later and through Gate's high school years in Sterling. He pursued pre-medical studies in Missouri and Nebraska colleges and completed them at the University of Wyoming. After medical school and internship – like many other Colorado doctors who began practice during the Great Depression – Gate had a real struggle for several years, first in Denver, later in the little coal mining town of Erie. Then he settled permanently in Englewood and soon displayed leadership in both medical and civic affairs.

Before his presidency Gate had served in many important positions in both his Arapahoe County Society and CMS. Three different state presidents had accorded him their weightiest individual appointment – Chairman of the powerful Public Policy Committee.

He recovered rapidly following his brief presidency and two years later was back in CMS harness as an AMA Alternate; in 1965 he was advanced to Delegate, an office he still serves with distinction, in 1971 as Chairman of Colorado's AMA delegation.

Clare C. Wiley, Longmont; 88th CMS President, Dec. 1957-Sept. 1958
Born August 12, 1916
MD 1941, University of Nebraska

HE HAD less preparation for the position than any predecessor since 1918 – that was when CMS began electing its presidents a year in advance of their taking office – and he became one of our youngest presidents. His previous contact with CMS administration had been limited to the presidency of the Boulder County Medical Society, service in the House of Delegates, and three months as Vice President. But when the emergency arose, he proved that the House had chosen well.

Clare Wiley was spending a quiet evening at home that December 27, hoping and praying that all was well with his friend Gatewood Milligan, when the phone rang and another CMS officer sadly said: "Clare, Gate has resigned, so you are President, automatically, as of now."

Shocked, grieved by his friend's problem, President Wiley took hold in a manner that belied the terror he had expressed privately a week earlier when warned that President Milligan was ill and might resign. But the remaining nine months of that CMS year were conducted with such sure-footed poise that many wondered how in the world Clare did it. Other CMS officers, how-

ever, knew the answer. He had immediately spent long days in the Executive Office, meeting with Trustees, Past Presidents, committeemen and staff, and reading old files at night. Within a very few weeks he was speaking confidently before county medical societies and representing CMS at regional and national meetings.

After his presidency, Clare served four years as an Alternate Delegate to the AMA, and in 1961 he helped found the State Society's Unified Retirement Investment Trust and the Trust's initial management company.

He is a native of Imperial, Nebr. Immediately after internship at the Long Island College Hospital, N.Y., he started Active Duty as Lieutenant, USNR, becoming battalion surgeon for the 22nd Marines in the South Pacific. He came out of the war a Lieutenant Commander and settled in Longmont, first in solo general practice, and since 1947 as a partner in the Longmont Clinic, where he emphasizes pediatrics.

Clare is an avid collector of coins and antiques, and he takes an occasional fishing week-end off. But at last report (1971) he'd had only one two-week vacation since the war – "I'm always planning them; sometime I'll do better," he promises. He might well be called a "happy worrier," always exuding good cheer, full of fun at large or small gatherings, but always worrying quietly as to whether he's doing things just right.

John I. Zarit, Denver; 89th CMS President, 1958-59
June 9, 1900—December 16, 1970
MD 1923, University of Colorado

HIS CONSTANT reading had emphasized classic Hebrew philosophers and medical history as well as current science and his internal medicine specialty, but John Zarit's friends heard more and funnier Jewish jokes from him than any book could hold. "Rabbi Vance? This is Father John," was his standard start of each phone conversation with a friend who is as devout a Roman Catholic as John was a Jew. That is, until October 28, 1958, when this new CMS President changed the tune and phoned that same friend: "No more of this Father John business; from now call me Pope John" (the Vatican had just announced election of John XXIII). John Zarit and his many Catholic friends ribbed each other constantly, but never harshly.

He was born in New York City but was reared in Denver from early childhood. Except for his Brooklyn internship, his internal medicine residency at the old JCRS in Jefferson County, and World War II service as an Army MC Major, he had always practiced in Denver. Until his final illness he always maintained a busy solo practice, also serving half days the last several years as Medical Consultant to Medicare for the State Health Department.

To John Zarit must go credit for developing post-War-II concepts of modern tuberculosis control in CMS. He was chairman of the CMS Public Health Subcommittee on Tuberculosis Control from 1946 to 1958 and the last five of those years chaired the Public Health Committee itself, supervising 11 subcommittees. He personally gave annual dinners for his committees, then gently but firmly drove them until CMS was more active in public health work than ever in its history. This was recognized in 1957 when the Colorado Public Health Association gave him its annual Sabin Award, a coveted plaque.

His office was on the same floor as the old CMS suite in the Republic Building, and while CMS President he visited the CMS staff daily. One December day he observed them preparing "delinquent notices" for mailing to members whose annual dues had not yet been received. "Any reason I can't phone a few of these?" he asked, and when the reply was negative, he jotted down quite a list of names. An hour later, a CMS staff member visiting Dr. Zarit's office overheard his half of a phone conversation, partly unprintable, including this statement: "I'm the first Jewish President of this Society in over 60 years, and no */%@$*/%!@ of a Jewish doctor like you is going to embarrass this administration – you get that */%!@ check over to the Denver Medical Society today; you hear?" His results? 100 per cent!

John L. McDonald, Colorado Springs; 90th CMS President, 1959-60
January 8, 1903—March 15, 1961
MD 1936, Harvard Medical College

IN HONEST modesty he seriously and openly questioned his own suitability for the CMS presidency, but his El Paso County Medical Society and many other admirers insistently nominated him. The entire House of Delegates knew him as a leading cardiologist and recognized his proven organizational and executive skills, but some delegates, fearing he was "too left wing," nominated another candidate. John McDonald's election was by a narrow margin.

Soon CMS officers, much later the Society as a whole, learned that he was practical rather than doctrinaire in his political and social thinking. He was anything but "left wing"; but he was a deep student of history, a keen observer of current social trends and an accurate prophet of changes that are still taking place. In his Presidential Address he foresaw medicine necessarily moderating its then inflexible interpretation of "Free Choice of Physician" and he foresaw eventual ethical acceptance of some types of closed-panel practice. He saw Medicare in some form as inevitable; he warned that blanket opposition would fail, and urged medicine instead to guide that movement into practical plans. "I don't buy the 'Customer is always right' slogan entirely," he once said, "but history proves that when enough customers, en masse, demand a change, they get it."

As President he was completely loyal to his position and publicly supported every policy of the House of Delegates, even though it did not "buy" his ideas and he personally disagreed with some established policies. The House did, however, adopt two far-reaching proposals which he espoused and whose development he had guided in the years he had chaired the Constitution and By-Laws Committee and in his year as President-elect. One of these was the reorganization creating five (later six) Administrative Councils to supervise most CMS committees, relieve the Board of Trustees of that chore, assist the Board in policy-making, and condense multiple committee reports into a few for each House Session. The other was creation of the Unified Retirement Investment Trust (recently renamed Founders Income Fund) as a flexible vehicle for self-employed professional men to use in building retirement estates.

John McDonald was born and reared in Nova Scotia and had degrees from St. Francis Xavier College and the University of Toronto before studying medicine. He never quite lost that "Down East" accent. He survived his CMS presidency less than a year, succumbing to complications of hepatitis.

Cyrus W. Anderson, Denver; 91st CMS President, 1960-61
Born June 28, 1897
MD 1920, University of Colorado

IT SHOULD be recorded that physicians who feared John McDonald one year as "too left wing" and equally feared that his successor, Cy Anderson, would be "too right wing" were wrong on both counts. Those who saw them work together as a team knew differently – they watched these two found a retirement plan for CMS members, change the Society's hodge-podge of overlapping committees into an Administrative Council system, and persuade the House of Delegates to authorize a CMS home office building.

It is true that Cy Anderson, Denver-born son of all-Swedish immigrants, was and is a strict free-enterprise man from head to foot, a stubborn American patriot "of the old school." He, along with the Association of American Physicians and Surgeons of which he was once President, not only fought to the bitter end against any and all governmental participation in private medical practice, but would not participate in any

such schemes. He had early taken as his own the published "Creed of the Uncommon Man," ". . . to take the calculated risk, to dream and to build, to fail and to succeed . . ."

He dreamed of better operated and more responsive medical societies, and helped build them. He dreamed of a beautiful summer mountain home, and largely with his own two hands he built not only one, but others for his maturing children. Failure? Certainly in his inability to "lick (federal) City Hall." Success? In practice, in a half-dozen different presidencies and trusteeships and directorships, local, state and national, as a stalwart in the AAGP, in Blue Shield, in the Southwest Surgical Congress – Cy Anderson has succeeded in those and many civic endeavors. He succeeded as an astute investor and is still (1971) President of Founders Income Fund, which he and John McDonald helped create for CMS under its former name in 1960.

Cy now takes it much easier. He has retired from practice – certainly he was one of Denver's busiest general practitioners for years. Now he spends more time at his mountain retreat near Deckers, takes his wife on a foreign trip almost every year, and exercises his fingers more on the several musical instruments at which he was an expert in college glee club days. The fine tenor he then sang comes to light again when family or frequent guests feel in a barber-shop quartet mood. He is a congenial host wherever he is, a good photographer, a competent fisherman, and he bowls a very respectable score.

V. V. Anderson, Del Norte; 92nd CMS President, 1961-62
April 17, 1908—April 27, 1967
MD 1936, University of Colorado

THE V. V. stood for Vetalis Vernon, but he was "Vic" from childhood, perhaps because he was reared in Victor, Colo., from the age of six months, although born in Chicago. (He and his predecessor, Dr. Cyrus Anderson, were close friends but were not related.)

His whole too-short life, especially his World War II years, challenge any writer, even the fictionist. He dropped out of high school one semester, found his way to Alaska, fibbed about his age, and got a job operating an aerial tram for Kennecott Copper, a job so dangerous that no grown man would take it. Then back in Victor he really hit the books and graduated with his class. He worked his way through college and medical school as a hard-rock miner around Cripple Creek in summers, and as a tire molder for Gates Rubber Co. in school terms. Before and after his five Army years he always practiced in Del Norte.

Vic went to the Philippines with the New Mexico National Guard in 1940 as a Reserve Corps medical officer. A book could be written about his converting anti-aircraft guns into field artillery on Bataan, his participation in the infamous Bataan Death March, his survival of three death sentences by Japanese courts martial. Twice he was reprieved "temporarily" because he was the only doctor in that prison camp. The third reprieve ordered him and other prisoners to cut and carry on their backs 300-pound loads of ironwood, two miles each trip. Some of them died; Vic, a husky six-foot athlete, lived through it despite the scanty food.

Later, Vic and thousands of other prisoners were being transferred to Japan on two Jap troop ships. Vic saw U.S. bombers zero in on the convoy, which was not identified as carrying American prisoners; the other ship was sunk and Vic lost hundreds of friends.

As the war ended he was a victim of beri-beri, but in a few months he made a fair recovery. Then he plunged into postgraduate work and soon returned to Del Norte where he became not only the leading doctor but the leading citizen of the community if not of the entire San Luis Valley. A few years later he was awarded the Sikorsky Medal for his part in a daring helicopter rescue of injured victims of a private airplane crash, on a Colorado mountain higher than the 'copter's normal altitude limits. He already possessed a wealth of military decorations.

Vic's powerful Presidential Address called on doctors to engage in every possible civic activity including general politics, and he gave CMS an inspiring administration. War-time injuries and deprivations contributed to his untimely death from kidney failure.

Bradford J. Murphey, Denver; 93rd CMS President, 1962-63
Born May 23, 1891
MD 1920, University of Nebraska

HE WAS, simultaneously, a quietly efficient President of both CMS and Denver's Rotary Club while keeping up a dozen other civic pursuits and a heavy psychiatric practice – all while nearly blind from rapidly developing cataracts. Each day his secretary read him his mail and documents; each evening his wife took over the reading. Someone had to guide his hand to start his signature on letters and checks. If he was to use papers on a podium, they had to be typed in three-eighths-inch-high letters which he could barely read if he had spent the previous hour dilating his pupils. Those who knew all this wept for him and marveled at his cheerful calm and sure handling of every problem.

When all was running smoothly late in his CMS presidency and his Rotary duties were concluded, he took July off for cataract surgery. A month later he seemed at least ten years younger as he sped through preparations for the CMS Annual Session, saying "The skies were never so blue nor the girls so pretty."

"Brad" Murphey, whom a few old schoolmates still call "Jimmy" from his middle name, was born in Kansas City, graduated in pharmacy from Creighton, and then earned his way as a hospital pharmacist through Nebraska to his BA and MD. He chose psychiatry after internship and served residencies in midwestern, New York and Boston hospitals. He was summoned from Boston to Colorado Springs in 1927 to establish the nation's third Child Guidance Clinic. He directed it for 11 years, then established another in Wilkesbarre, Pa. In 1940 he moved to Denver.

He is a staunch conservative, but at the same time is a friend and advisor to leaders in liberal fields, including social workers, welfare organizers, and intellectuals of all shades. To argue a social or economic theory with Brad Murphey is to debate with a master of both logic and language – on rare occasions quite salty language.

Brad was elected a CMS Trustee and Constitutional Secretary in 1945 and was Chairman of that Board for two years; later he served as President of the Denver Medical Society. He was in constant demand as leader or consultant in civic and educational projects and in 1967 closed 27 years on the CU Medical faculty as Associate Clinical Professor of Psychiatry.

His hobbies feature collecting: Colorado medical history records, historical medallions, fine wood carvings of horses, and books both old and new – he reads them all. He is also a competent scenic photographer.

Vernon L. Bolton, Colorado Springs; 94th CMS President, 1963-64
Born December 13, 1910
MD 1936, University of Kansas

CAN ANY one man carry on a full-time practice in radiology, faithfully serve high offices in local, state and national medical societies and local civic enterprises, run an investment company and a working ranch, travel extensively for pleasure as well as on personal and professional business, pursue a dozen different hobbies at the same time, keep in athletic trim, and never appear hurried? Yes, if his name is Vernon L. Bolton.

Take his hobbies first. For one, "Vern" or "Bud" (he answers to both nicknames) is a "rock hound." His basement workshop is filled with saws, tumblers and other rock-hound machinery, and with shelves and bins of colorful rocks, minerals and semi-precious stones. He also collects Southwest Indian jewelry and artifacts, 19th-century pharmaceutical and antique patent medicine bottles of all kinds, some of which he dug from abandoned town dumps. In a kiln he turns fancy liquor bottles into fancier dishes and ash-trays. He makes costume and contemporary jewelry for friends, and art objects for the home he and his wife personally designed.

He likes to "comb" beaches for rare stones and shells. He keeps at least one horse at home, swims daily, is a photographer, a figure skater, and an expert skier although he didn't learn to ski until nearing 50. He is a licensed and competent pilot and until recently owned three private planes in partnership with some friends. Now, he rents a plane when he is in the mood for a quick trip to Florida or Tucson, or if he just wants to get in a couple of hours practice.

Vern grew up in Oklahoma until he took his last two years of liberal arts at Kansas University. He stayed on at KU for medical school, earning his way as boxing coach, and boxing professionally. He interned at the University of Oklahoma, then did general practice for two years in Alamosa before deciding on a residency in radiology, again at OU. World War II interrupted this, and he volunteered as a First Lieutenant. He wound up as a full Colonel, commanding hospitals in the South Pacific. After the war he resumed his residency, this time at Rochester, N.Y. That finished, he settled in Colorado Springs.

He held high CMS offices for years before his presidency, and afterward he was elected and re-elected an AMA Alternate-Delegate for four years. Ask him how he does it all — he grins from ear to ear and says "Sure, it's a lot of work, but a lot of fun, too."

Samuel B. Childs, Jr., Denver; 95th CMS President, 1964-65
Born January 14, 1910
MD 1936, Columbia University

LIKE FATHER, like son, except in medical specialty. Both were fine athletes. Both had elite educations in New England and New York. Both undertook extensive postgraduate study. Both were intensely active in medical societies, and the son still is. Both served as President of the Denver Medical Society and on its Board of Trustees. Both became President of CMS, to date the only instance of a President's son reaching that same high office. Interestingly, the father inducted CMS's first Executive Secretary early in 1929; the son presided over the 1965 Annual Session just two weeks before that same Secretary's retirement. His parents called the younger Samuel by his middle name, Beresford, but since his father's death he has been Sam to friends and colleagues.

At six-feet-five he is probably the tallest President CMS has had in its first 100 years. With his height go an urbane, dignified bearing and suave speech, accentuated by a rather unbending neck — he broke it while a freshman medical student in an "ol' swimmin' hole" dive; that and the "collar" he had to wear for a year afterward left him with some limitation of motion. Combine all these characteristics and one understands how those meeting him for the first time may erroneously assume that he is somewhat "stuffy."

How wrong they are! Patients after the first visit, people who work with him on committees, friends who share his hobbies like golf, contract bridge, fishing off the Florida coast or on trout streams nearer home, or who may have "ducked out" with him from some really stuffy banquet to sample a night club or two — all these know Sam Childs as a self-starting driver in organization work as well as surgery, but know him also as a fun-lover who wants to share his fun with others. He likes best to be in disreputable old clothes, fighting a big tarpon or even a snook from a small boat among the Florida keys, or fishing the Colorado or the Snake for their big ones.

A native Denverite, Sam was a great swimmer and oarsman for four years at Yale, the last two as a member of the varsity crew. After his Columbia MD he spent five years at New York's Presbyterian Hospital in internship and surgical residency. Returning to Denver in 1942 he joined the Army's 2nd Auxiliary Surgical Group and spent 38 months in the campaigns through North Africa, Italy, France, and finally Germany.

The theme of his Presidential Address expressed his personal philosophy that the doctor must be the fiscal agent to conserve his patient's health dollar. He still gives yeoman service to CMS Councils working toward that goal, though retired from active practice since May 1, 1971.

Paul R. Hildebrand, Brush; 96th CMS President, 1965-66
Born June 12, 1906
MD 1930, University of Michigan

HE STEPPED into the "batter's box" as CMS President with two strikes against him. He had not been the House of Delegates' first choice in 1964 for President-elect. Published well in advance of that Annual Session was the popular nomination of a different man; that nominee suffered a massive coronary attack just before the Session and withdrew. The Nominating Committee reconvened as the Session opened and selected Paul Hildebrand.

Medicare threw the other strike; the law was enacted in mid-1965 to go into full operation July 1, 1966. Most CMS members had bitterly opposed passage of that law and their bitterness mounted in late 1965; many announced they would refuse any sort of participation. A small but outspoken minority welcomed the new law as long overdue, so the din of vocal battle was heard wherever doctors gathered. Also, there was the added work load for CMS officers and staff when Medicare and related government programs went into full effect, plus the staff changes as the Executive Secretary retired, his assistant taking over two weeks after Paul Hildebrand was installed.

But as a President who had personally opposed enactment of Medicare, Paul convinced a majority of CMS members that they should observe and live with the new law and that they must at the same time maintain a high quality of medical care. How did he do it? In part by a courageous and persuasive Presidential Address and months of similar talks to every component society that would listen. He showed that after thirty years of general practice in Brush, he understood the problems of private practice.

Add his experiences as a CMS Grievance Committeeman, his six years on the CMS Judicial Council, his 29 military years as Army Reservist from 1934, four years duty in World War II and later commands in the National Guard as full colonel. Also add his service on a hospital Board of Trustees, as twice Commander of his American Legion Post, President of his Chamber of Commerce, President of Colorado's AAGP Chapter—yes, he knew administration, too.

Paul is the son of an Indiana Methodist minister. While interning at Colorado General Hospital, he met and married the operating room supervisor. Their three sons are all professionals, a PhD, a DVM, and an MD.

Shortly after his CMS presidency, CU executives persuaded him to give up his practice and be the first Director of the Colorado-Wyoming Regional Medical Program in its development of continuing education on heart, stroke, and cancer problems. He soon was advanced to Coordinator of the Program, but (as we go to press) he plans complete retirement for July 1, 1971.

Myron C. Waddell, Denver; 97th CMS President, 1966-67
Born August 6, 1903
MD 1934, Duke University

ONE OF Myron Waddell's accomplishments, and one which should outlive him as a permanent memorial, preceded his CMS Presidency by four years. It is the Colorado Health Careers Council, housed in the CMS office building. He started it personally, with CMS approval, in 1962 and financed it himself for its first several years, anonymously. Until recently he had sworn to secrecy the few who knew where that money came from. Gradually, medical societies and organizations of allied professions and technologists began to join the Council and and help with funds. It is now a fully chartered, tax-exempt corporation, bidding fair to become Colorado's major tool for steering bright young minds into the health careers where so many more recruits seem always needed.

Dr. Waddell was a co-founder in 1960 of the CMS Annual Senior Day for CU's graduating medical students. As CMS President he directed Colorado's first participation in the Amigos de

las Americas, which annually sends teams of selected youths under medical supervisors to Central and South American countries that seek help in teaching sanitation, vaccination and modern health practices in remote native villages.

One seldom sees Myron Waddell with less than an ear-to-ear grin on his face. And persuasive? He gets twice the usual amount of volunteer work out of busy men and women, but always working as hard or harder himself, never appearing hurried.

He was born in Iowa but reared in Redwillow and Indianola, Nebr. He attended Nebraska Wesleyan University at Lincoln and St. Louis University, Mo., obtaining BA and MS degrees before entering Duke's medical school. He first came to Colorado for internship and residency at Denver's Presbyterian Hospital. Then he was Assistant Professor of Anatomy at George Washington University, D.C., but preferred private practice and he had learned to love the West. He came back to Denver in 1937 and has practiced here ever since except for his four years as an Army Major in World War II. In 1952 he became Chief of the Ob-Gyn Service at Presbyterian and held that position 15 years. He is a Past President of the Colorado Ob-Gyn Society and has served years on the Boards of Trustees of Laradon Hall, Warren Methodist Church, and Nebraska Wesleyan University.

Henry H. Zeigel, Collbran; 98th CMS President, 1967-68
Born September 30, 1899
MD 1924, Kansas City College of Medicine

ALMOST invariably, physicians keep themselves conservatively well dressed in their offices, on hospital and house calls, and anywhere else in their daily professional lives except when they get away for golf, fishing, gardening or some other hobby away from patients.

Henry Hall Zeigel is "the exception that proves the rule." Visiting Grand Junction or Denver or on most any trip away from his home grounds he is always seen as the perfectly groomed, handsome, pleasantly reserved representative of a proud profession. But seeing patients in his hospital office, making house calls, or just on the streets of Collbran, while inherently neat and clean he is usually in old boots, stained and weary trousers, tieless flannel shirt and an outdoorsman's jacket. Why? Because that is the dress of most of the 200-odd inhabitants of little Collbran and of 90 per cent of the other 1,500 people in his rural area – farmers, working ranchers, small shop owners, just plain simple folk.

Dr. Zeigel is a stubborn man and he runs a "taut ship" in every aspect of his practice, including his direction of the Plateau Valley Congregational Hospital. It was primarily his own tenacity and convincing logic that won support of medical societies, health departments, then the AMA and recently the United States Congress itself, so that his 17-bed hospital and similar small-town institutions over the country could continue to serve Medicare patients. One might say that Henry Zeigel *did* "lick city hall," in this case the Social Security Administration.

Both he and his wife are careful savers, shrewd in business matters, and even in 1971 he occasionally accepts household supplies or produce in lieu of dollars from patients who need, or prefer, to pay that way. Generous for good causes, the Zeigels donated the funds that built a new wing and modernized the rest of their church hospital in 1952.

He is both a demanding man and a most kindly one who demands more of himself than of his associates. He takes no "guff" from anyone, but if a friend is worn down from overwork and needs a change, that person is likely to become a house guest of the Zeigels for a week.

Henry hailed originally from Marshall, Mo., but was reared in Dragon, Utah, and Portland, Ore. His pre-medic work was at the University of Washington plus extension courses from the University of Oregon. After internship at the LDS Hospital in Salt Lake City he "looked for a job" in Grand Junction, joined an older doctor in Collbran, and when the latter retired in 1932, took over the practice where he is still "solo," still going strong.

William M. Covode, Denver; 99th CMS President, 1968-69
Born February 12, 1908
MD 1935, Northwestern University

PREDECESSORS recognized the state of flux in medical practice precipitated by Medicare and had urged CMS to accept and try to guide government programs, but it was Bill Covode who really took the bull by the horns and aggressively forced new, highly progressive modern thinking into the Society's socio-economic activities. His incoming Presidential Address and other public utterances were at first widely criticized by many colleagues who called him "too liberal," even "a damned radical." But before his term as CMS President ended, almost all were applauding his proposals.

He openly welcomed the Kaiser Permanente Foundation type of panel practice to Colorado, also government-supported neighborhood health centers. Some typical quotes: "We can no longer afford our ancient prejudices against those we regarded as intruders;" "Stop worrying *about* government, start worrying *with* government;" "Medical care has gotten out of control at the economic level;" and he said that organized medicine – local, state and national – must help get it back in control or be ready to accept the status of just a fraternal club. He pushed complete peer review of utilization. He proposed full voting membership in CMS for Colorado's medical students, and similar rights in existing local societies for interns and residents: "We need and must get the ideas of the next generation of doctors." He pushed, and pushed; some of his proposals were adopted within his presidential year, some had to lie over a year as CMS constitutional amendments, but were then adopted.

Even those who at first opposed him listened whenever Bill Covode spoke, and they read everything he wrote, because his every speech and presidential letter sparkled with knife-sharp wit, apt phraseology, sly digs and frequent belly laughs.

Bill was born in Kittanning, Pa., of "Pennsylvania Dutch" stock. He was reared in Tampa, Fla., until he went to Chicago for his MS and MD, a Cook County Hospital internship and genito-urinary residency. He practiced two years in Illinois, and briefly in Port Arthur, Tex., then served five years in the Army's 29th General Hospital. He came back from the South Pacific a Lieut. Colonel and has practiced his specialty in Denver since 1946.

Combine inborn Germanic stubbornness and stick-to-it-ive-ness with a hail-fellow-well-met cheer; add side-splitting jokes and rendition of sometimes ribald Swedish and German songs for groups of friends, and you have the picture of William M. "Bill" Covode.

John M. Wood, Englewood; 100th CMS President, 1969-70
Born March 2, 1921
MD 1951, University of Colorado

HE SHOULD go down in history as the father of the Colorado Foundation for Medical Care. The Arapahoe County and Denver Medical Societies preceded it with local and metropolitan area foundation concepts, but John Wood insisted that there should be a statewide foundation, operated by the State Society. When he became President-elect (one of the three youngest in the last 50 years), he drove hard for two years to get it organized, incorporated, adopted by the House of Delegates, funded, and a "going concern." In doing so he spent heavily of his own time and money and even refused the honorarium that CMS routinely accords its Presidents.

His interests were not limited to the Foundation. His Presidential Address and other talks promoted multiphasic screening for better preventive medicine, expanded peer review mechanisms, better communication between CMS Councils, committees and members, and between local medical societies and non-member physicians.

He and Dr. Covode who preceded him met the challenges of the late 1960s with almost identical philosophies and goals, but in different ways. Covode was the master public speaker

and writer; Wood the master organizer with split-second reactions to new problems – as when the U.S. Senate Finance Committee and some newspapers front-paged an accusation that "one doctor" in Colorado received $326,000 in fees under Medicare-Medicaid in a single year; actually that total had been paid to the *entire* Colorado General Hospital staff! Dr. Wood quickly forced retractions and apologies, which were manifestly reluctant.

John Wood is a native of Alton, Ill., but was brought to Denver as a teenager. He had four years of World War II duty as a Navy Chief Pharmacist's Mate, and in late 1945 he began premedic studies at the University of Denver. After his Colorado University MD, he returned to the Navy for internship and a year of pathology residency, completing the latter at Colorado General and Porter Hospitals. He has been Director of Pathology at Swedish Hospital since 1959 and Director of the School of Cytotechnology at CU's Medical Center since 1958. His home is in Greenwood Village where he served four years as City Councilman and then Mayor for two years. He has been a willing worker in the Arapahoe County and State Societies for 15 years, and has been Speaker of the CMS House of Delegates. In 1971 he is still hard at it as President of the young Colorado Foundation for Medical Care.

His hobbies include fishing, hunting, photography, the Old Timers Baseball Association and the Young America League. He once managed young teams but has little hobby time now.

Marvin E. Johnson, Denver; 101st CMS President, 1970-71
Born September 3, 1918
MD 1943, State University of Iowa

HIS YEAR as CMS President has four months left as this is written, hence no summary of Marvin Johnson's administration is yet possible, but highlights of his career in surgery, in teaching, and in organized medicine should be noted. In the latter he has been an enthusiastic team worker and one whose delightful sense of humor has often relieved tensions. He has kept up with multiple, simultaneous jobs for both county and state societies, with a regular teaching schedule at several institutions, with time-consuming AMA assignments and, until leaving private practice in 1966, a busy surgical practice. When he sometimes missed a meeting that others considered highly important, it was usually because another equally important meeting conflicted.

To name a few big jobs "Well Done": Chairman, Scientific Exhibit Committee, 1952 AMA Clinical Session; Chairman, Program Committee, 1961 AMA Clinical Session in Denver; Scientific Exhibit Awards Judge, 1962 and 1963 AMA Annual Sessions; Examiner, National Board of Medical Examiners; presidencies of Denver General and Saint Joseph Hospital staffs, and three years as Constitutional Secretary and Trustee of CMS. Add still current ones: Full-time Director of Surgical Education and Research for Saint Joseph Hospital since 1966; Assistant Professor of Surgery at CU since 1955; Consultant in Surgery, with teaching responsibilities, at the Denver General and Veterans Administration Hospitals in Denver and the State Hospital in Pueblo; and add his appointment last winter to the AMA's Council on Scientific Assembly, in charge of all AMA scientific programs. Even that is not all, but it shows him to be a man who loves medical society work, loves it perhaps more than his only other hobby: floral gardening.

"Marv," as most friends call him, was born in Sioux City, Iowa, and was educated there and at the University of South Dakota before going to Iowa State for his MD and internship. Then he was in the Army, coming back from the Philippines in 1946 as a Captain. A surgical preceptorship and a CU residency followed, leading to an MS in Surgery in 1950.

Early in his CMS Presidency he developed and "sold" to the Society and to state social service officials a workable statewide system of utilization review for Medicaid, to replace an unacceptable proposal the State had made to CMS. With this and the House-of-Delegates-controlled Colorado Foundation for Medical Care, which Marv Johnson helped John Wood get really moving in 1971, new milestones mark the 100th year of the Colorado Medical Society.

ALA-TERS
1971

Medical Education in Colorado: 1881-1971

Richard W. Whitehead, MD, and Robert L. Perkin*

THERE WERE prophetic words in the address Richard G. Buckingham, MD, delivered to the historic meeting in Denver on September 19, 1871, at which the Colorado Medical Society was founded. Although there were fewer than fifty physicians resident in the Territory of Colorado, the didactic tradition of medicine, dating back at least to Hippocrates, was present on the new American frontier. Dr. Buckingham, who already was president of the five-month-old Denver Medical Association and later in the day would be elected first president of the Territorial society, took the occasion to propose that the advancement of medicine through formal education move forward without delay in a rough country which had been wilderness only a little more than a decade earlier.

"We have medical men already in our Territory who have received their educations in the best medical schools of our country," Dr. Buckingham said; "whose requirements and experience are inferior to none, and who will lead in all the departments of the science of medicine, when Colorado shall be able to number its hundreds of thousands, among whom may be found men of high literary and scientific attainments." Dr. Buckingham continued:

> And the time is fast approaching when Schools and Colleges of a superior order will be established in our midst. When that time shall have arrived, let us as a body be ready for the transformation, and take our stand among the most favored of the professions, fully prepared to sustain an honorable position and uphold the dignity of our calling.[1]

Dr. Buckingham's prescient remarks would be fulfilled by the founding, only a little more than a decade later, of the first medical school in Colorado, and before the close of the 19th Century four schools would be in operation.

Colorado Territory and the infant city of Denver made early commitments to higher education. The University of Colorado was "established" and its location in Boulder fixed by an act of the Territorial Legislature in November, 1861. Fifteen years would elapse before the University became a reality with the admission of its first students on inaugural day, September 5, 1877.[2] The isolation brought about by the Civil War and the consequent economic impoverishment of the aspiring Territory had shelved the hopes for a state university until after Colorado was admitted to the Union in 1876.

In Denver, however, the cause of higher education had been pushed forward despite the war with backing from the second territorial governor, John Evans, MD. Governor Evans had earlier participated in the founding of Northwestern University at Evanston, Ill., and the town was named for him. He now wanted a university for the capital of his new territory, and he began in 1862 the movement which culminated in the opening on November 14, 1864, of the Colorado Seminary, later to become the University of Denver, in a two-story building of four rooms at 14th and Arapahoe Streets. Financial stress closed the seminary for a period of years in the 1870s,

---

*Dr. Whitehead is Professor Emeritus of Pharmacology, Assistant to the Dean for Alumni Affairs, and Executive Secretary of the CU Medical Alumni Association; Mr. Perkin is Director of Public Information; both at the University of Colorado Medical Center.

[1] Smiley, Jerome C.: *Semi-Centennial History of the State of Colorado*, Lewis Publishing Co., Chicago-New York, 1913, Vol. I, pp. 675-677.

[2] Davis, William E.: *Glory Colorado!: A History of the University of Colorado, 1858-1963*, Pruett Press, Boulder, 1965, pp. 6, 21.

but it was reorganized in 1880 and the first university degrees granted in Colorado were awarded in April, 1882.[3] (The little University in Boulder would grant its first six baccalaureate degrees a few weeks later on June 6.)[4]

"University Hall" of the University of Denver (Colorado Seminary) at 14th and Arapahoe Streets in Denver. Erected 1880-81 and the second University building to occupy this site. Some of the classes of its Medical Department, first school of medicine in Colorado, were conducted in this building. (Western History Collection, Denver Public Library)

The University of Denver Medical Department

Formal medical education in Colorado had its beginning with an action on June 9, 1881, establishing a Medical Department of the University of Denver and Colorado Seminary. Fifteen practicing members of the medical profession in Denver and one layman organized themselves as the faculty on June 11, and the first session of the school opened November 5 in the Lessig Building on the east side of 16th Street between California and Stout Streets.

> There were no full-time professors in those days. No salaries were paid. Fees of students were applied to development of the school. There were no laboratories, except a dissecting room of morbid equipment. When a private case demanded attention of a teacher at his lecture hour, that lecture was apt to lapse. Bedside clinics were given rather irregularly at the [Arapahoe] County Hospital and students were invited to witness operations at private hospitals.[5]

Five students were graduated in 1883, and there were 16 undergraduates, including one woman. Early classes were held in the offices and home of the Dean, Dr. Henry K. Steele, at 16th and Stout Streets and in "University Hall," erected 1880-81 on the site of the original two-story building at 14th and Arapahoe Streets. Classes also were held in the Chamber of Commerce Building, nearby on Lawrence Street. The Haish Building at 14th and Arapahoe Streets, across

[3] Sewall, Henry: "A Historical Sketch of the Medical Department of the University of Colorado," *Colorado Medicine*, 22:364, 1925.

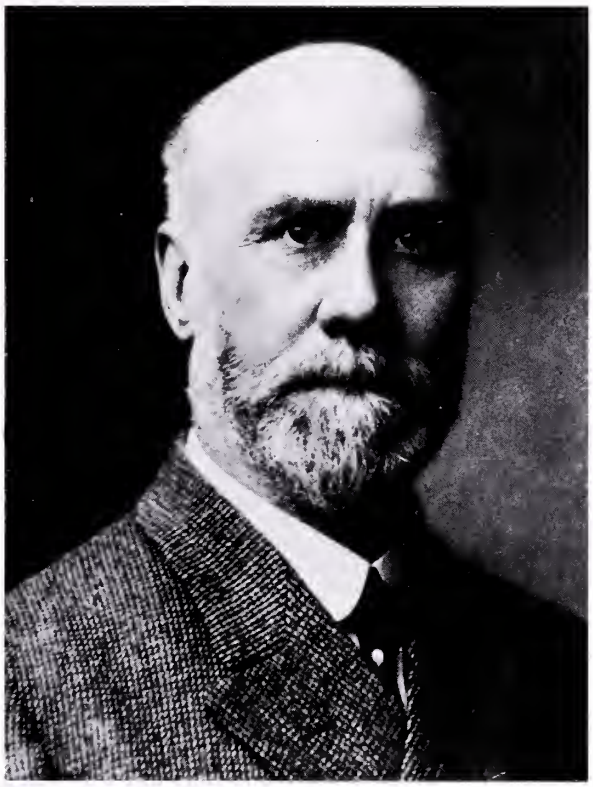
[4] Davis, op. cit., p. 41.

[5] Sewall, op. cit., p. 365.

from University Hall, was completed in 1888.[6] The medical school used this as permanent quarters until the school was discontinued in 1910. The building was four stories high and half a block long on its 14th Street frontage. Classrooms occupied the first, second and third floors. There was an amphitheater, dissecting room and laboratory on the fourth floor. Dr. Henry Sewall, who was on the scene as Professor of Physiology beginning in 1890, describes the situation thus:

> In September 1888 the school was removed to its present site in the then new, Haish Building, but occupied only part of the lower floor on the north side of the building. At this time and for several years previous, anatomical dissection and lectures on practical anatomy had all been carried on in filthy little rooms upstairs in a small building back of Walley & Rollins' undertaking establishment. Early in 1889 the whole scope of the medical work was transferred to and performed in the south section of the Haish Building at present occupied, the second floor, however, still being reserved for a Dental operating room. At the beginning of the present year [1898] we find our facilities in the way of building accommodation greatly increased, the dentists have resigned their quarters, and practically the whole of the floor space of the basement has been turned over to us and most of it fitted up for dispensary teaching and practice. Our resources thus represent the equivalent of several thousands of dollars annually in rental, and few medical schools in the country can claim better opportunities in space or material for carrying on medical teaching or scientific investigation.[7]

The catalogue of 1886-87 announces the medical course as requiring two academic years of six months each. In 1888, the requirement for graduation consisted of three years of medical study, including two courses of medical lectures of less than six months each. The lecture session was lengthened in 1889 to seven months, and in 1895 four years of study were required. There was



Dr. Henry Sewall, Professor of Physiology in the University of Denver Medical Department in 1890, later on the faculties of both the Denver and Gross College of Medicine, and the University of Colorado School of Medicine. Dr. Sewall was the early historian of medical education in Colorado. (Medical Photography Department, CU Medical Center)

The Steele Block at 16th and Stout Streets in Denver, built in 1882, figures in the annals of the medical schools of both the University of Denver and the University of Colorado. The block occupied the site of the residence of Dr. Henry K. Steele, first dean of the University of Denver Medical Department, who conducted some of his classes in his home. (Western History Collection, Denver Public Library)

[6] Nolie Mumey, MD, supplies this note: "The building was named for Jacob Haish, the barbed wire magnate, who donated half of his profits from the sale of wire in the region. His initial donation was $40,000 in cash. The structure housed the Medical, Dental and Law schools. The building was demolished in 1963."

[7] Sewall, Henry: "Historical Sketch of the Medical Department of the University of Denver," *Colorado Medical Journal*, 4:97, 1898.

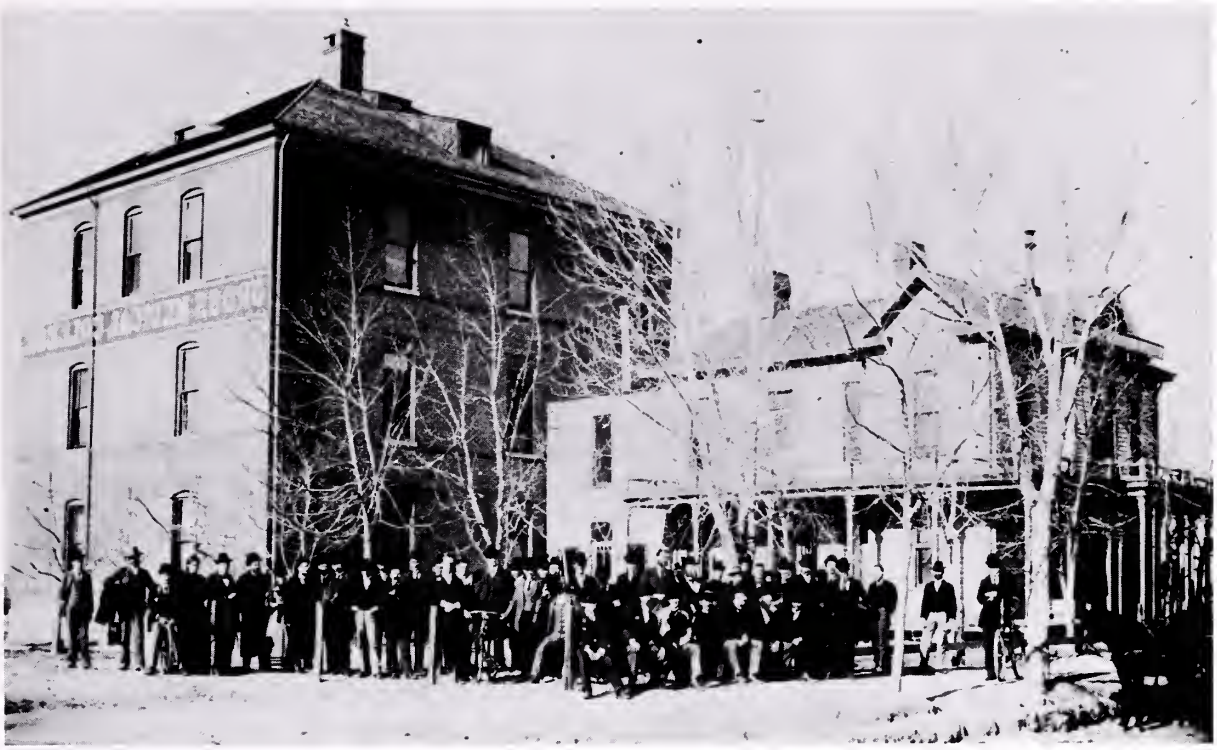
a $5 matriculation fee, a $75 fee for each course of lectures, $5 for dissection and a fee of $30 for the graduation examination. Aided by these fees, the Medical Department, having been accorded free rent by the University, built up a considerable store of equipment, including microscopes. The medical schools of the United States at this time were frequently the most popular and prosperous departments in the universities. Many medical schools of the day, including that of the University of Denver, were in effect owned and operated for profit by the professors, and there was considerable reluctance on the part of the schools to permit full regulation by their parent institutions. This was true at the University of Denver, and up to 1898 the executive committee of its medical department acted virtually independently of the University. In that year, the Medical Department acquired a separate incorporation under the name of "The Denver College of Medicine." By terms of the agreement, the college continued in affiliation with the University but was permitted to have full ownership of its money, apparatus and other property. There followed a period of closer supervision and improved teaching. The annual tuition was increased to $100, and in 1900 the course of instruction was extended to four eight-month academic years.

The Haish Manual Training School Building was built in 1888 across 14th Street from "University Hall" of the University of Denver. It served as headquarters of the University's Medical Department until 1910, and at the time this photo was made was serving the merged Denver and Gross College of Medicine. (Courtesy University of Denver)

The Gross Medical College

At the time of the founding of the Medical Department of the University of Denver, a considerable number of Denver doctors were omitted from the faculty.[8] A rival medical school of purely proprietary nature was started by this latter group in May of 1887, and named The Gross Medical College for the distinguished Philadelphia surgeon, Samuel D. Gross, who died in 1884

[8] Sewall, "Historical Sketch of the Medical Department of the University of Colorado," op. cit., pp. 367-8.



Gross Medical College buildings at 10th and Water (now Inca) Streets in Denver. The frame building, left, housed the dispensary, faculty room and secretary's office. The brick building provided lecture rooms, laboratories and (in the attic) anatomical dissecting laboratory. (Collection of Nolie Mumey, M.D., courtesy Colorado State Historical Society)

An anatomy class at work, Gross Medical College. Date unknown. Note gaslight fixture. (Coll. of Nolie Mumey, M.D.)

and who had nothing to do with the school's origin. The Gross Medical College was known as the Medical Department of the "Rocky Mountain University." The medical college was the only branch of this paper University to be realized. Although this school was held in dis-esteem by its rival Denver school, the faculty of Gross College steadily increased in strength and was very active in the attempt to develop a medical school to meet the advancing requirements advocated by the Association of American Medical Colleges, of which it became a member. The first president of the Gross College was William Harmon Buchtel, MD.[9]

The school was located initially in the Brinker Institute building at 18th Street and Broadway. In March 1888 the trustees purchased a two-story brick building at 2115-19 Larimer Street, remodeled and occupied it until 1891. The college then was moved to a building at the corner of 10th and Water (now Inca) Streets, not far from the County Hospital. The facility consisted of a two-story frame building fronting a four-story brick structure. The first floor of the frame building was used for the dispensary, faculty room, and secretary's office. The second floor had rooms for the use of students who were answering calls for obstetrical cases and emergencies. The ground floor of the brick building contained an amphitheater seating 125 persons. On the second floor were the chemical laboratory, a lecture room, and a room for gynecology. The third floor contained the anatomical, pathological, and bacteriological "museums," and the fourth floor was used as the anatomical laboratory for dissections.[10]

By 1891, the faculty included twenty physicians and tuition was $75 per year. "Dissecting material at cost. Ministers' and physicians' sons at half price."[11] In that year eight students were graduated and thirty-eight were enrolled. The school continued to grow, and in 1898 seventy-one students were attending and the course was lengthened to four years. Clinics were held at the County Hospital, St. Luke's Hospital, and the Deaconess Home Hospital.

The school edited and published a monthly journal, *The Gross Medical College Bulletin,* which ran to six annual volumes. The journal was especially concerned with comments on local medical conditions and repeatedly recommended the organization of an association of the faculties of the three medical schools by that time operating in Denver.

The increased attention to medical education throughout the country, accompanied by the added expense for medical instruction, placed a heavy burden on the faculty of the Gross Medical College. Instead of the institution being a source of revenue, as had previously been the case with proprietary schools, it imposed a financial drain on the faculty and staff.

The Denver and Gross College of Medicine

As time went on, the animus between the two Denver medical schools tended to diminish, and mutual respect and confidence increased. The first move within these schools to combine the Denver College of Medicine and the Gross College was initiated in 1900, although Colorado Medical Society Presidents had urged it for the preceding seven years. Committees representing the two schools held several meetings, and in the spring of 1902 an agreement to combine was reached and ratified by vote of the respective faculties.

Accordingly, the academic year 1902-03 was distinguished by the creation of "The Denver and Gross College of Medicine," notice of which was published in the "Twenty-second Annual Announcement of the Medical Department of the University of Denver." The first session of the combined school opened in September 1902.

Fusion of the two schools involved a reorganization of the combined faculty of 87, resulting in an emeritus list of 11, full professors 39, clinical professors seven, associate professors four, lecturers 11, demonstrators one, instructors six, and assistants 23. The requirements for admission and graduation conformed with those laid down by the Association of American Medical Colleges. The matriculates of the school totaled 133, plus five special students. There were 13 women in the combined classes. The course of instruction was set at four sessions of eight months each. Tuition was $100 per year.[12]

[9] Dr. Mumey notes: Dr. Buchtel came to Colorado in 1871. His wife was Helen Barnum, daughter of P. T. Barnum of circus fame. He was a brother of Chancellor Henry A. Buchtel of the University of Denver. Dr. Buchtel died October 14, 1912.

[10] Gross Medical College, *Circular of Information and Register of Students,* Session of 1901-02, p. 8.

[11] Gross Medical College, *Announcement,* Eighth Annual Session, 1894-5.

[12] Sewall, "Historical Sketch of the Medical Department of the University of Colorado," op. cit., p. 369.

Classes of '95, '96 and '97 in lecture amphitheater of Gross Medical College. At least eight women students can be counted. (Collection of Richard W. Whitehead, MD)

The Class of '90 poses for its picture in the anatomy room. (Collection of Richard W. Whitehead, MD)

The combined school was nominally affiliated with the University of Denver and its graduates received their degrees from the University, but it was still essentially a proprietary school. It continued to use the Haish Building quarters of the Denver College of Medicine but set out to improve its scientific and laboratory instruction with the remodeling about 1905 of a building, a former gymnasium, on the south side of Arapahoe Street between 13th and 14th Streets to serve as a laboratory, and construction in 1906-07 of a brick structure on contiguous lots at a cost of $21,000 for use as a dispensary and clinical building. More than $6,000 of the construction cost was raised by popular subscription and the remainder came from the resources of the school itself.[13]

The merged Denver and Gross College of Medicine on Arapahoe Street sometime after 1907. The laboratory building, right, was a former gymnasium. Next door to the northeast is the dispensary and clinical building (horizontal brickwork). (Courtesy of University of Denver)

The Alumni Association of the Denver and Gross College of Medicine held frequent meetings during the decade from 1901-1911[14] at which one or more members presented papers on timely subjects of interest – The Action and Use of Digitalis, Medicine and the National Formulary, Management of Infectious Diseases, etc.

During the decade from 1900 to 1910, the Denver and Gross College of Medicine enjoyed fair success as a school for practical instruction. In this same period, however, there was considerable agitation in many quarters for elevating the status of American medical education. Active in the effort were the Council on Medical Education of the American Medical Association, the Association of American Medical Colleges, and the Carnegie Foundation for the Advancement of Teaching. The reform was directed toward the abolition of small, proprietary or poorly financed schools and the strengthening, by union, of other schools under university jurisdiction and with hospitals under their control. In 1908, a movement to unite with the University of Colorado

[13] Claman, Henry N.: "The Beginning of Medical Education in Colorado," *University of Colorado School of Medicine Quarterly*, 7:4-8, 1966, and 8:5-8, 1966.

[14] Charles, R. L.: "Meeting, Denver and Gross College of Medicine Alumni Association," *Colorado Medicine*, 5:92-93, 1908.

School of Medicine was headed by Dr. W. A. Jayne, who was Dean of the Denver and Gross College. He had accepted the deanship on the condition that an attempt be made to consolidate the Denver and Gross College of Medicine with the Medical Department of the University of Colorado. This plan failed, however, because the trustees of the University of Denver would not agree to the merger.

In 1909, representatives of the Carnegie Foundation for the Advancement of Teaching visited Colorado as part of a nation-wide study leading to an analysis and recommendations for improvement in medical education. This study was headed by Abraham Flexner, and it became a clear turning-point in the history of American medical education.[15]

Flexner Report Major Turning-Point

In the opinion of many observers then and since, including Dr. Claman, the influence of Abraham Flexner and his famous Report cannot be overestimated.[16] With one associate, Flexner visited each of the 155 medical schools then in operation, and on the basis of his firsthand observations and inquiries he demanded nothing short of a total reorganization of the American medical education system. Although his became undoubtedly the most effective voice, there were others who were seeing the same things and calling for similar reforms. One of these was William P. Munn, MD, then President of the Denver and Arapahoe Medical Society, who in 1894 had complained that there were too many doctors in Colorado, and too many medical schools of questionable standards. He was among those urging that professional education be improved by merger and consolidation.[17] Dr. Munn took note that Polk's Medical Directory for 1892 showed a physician-to-population ratio in the United States of about 1:600, but the State of Colorado, by his estimate, had 1:250-300. Dr. Munn felt nothing could be done about the influx of degree-holding physicians to Colorado, but he proposed that something be done about the products of the four Colorado medical schools then existing.

> In the last six years, the Colorado "home product" of doctors has been about one hundred and thirty. If the present rate of annual increase continues, the next six years will add three hundred more. I am of the opinion that this is a quantity which ought, if possible, to be absolutely eliminated from the problem; but since absolute elimination is not possible or not feasible, then our best efforts should be directed to making it as small and as desirable a quantity as possible.

In Dr. Munn's view, Colorado really needed no medical school at all, but he was willing to settle for a union of the existing schools, and the matter was, he felt, one of urgency. The doughty Dr. Munn laid about him with a broadsword:

> . . . . statistics prove beyond contradiction that we have more doctors in proportion to population than almost any other state in the Union.
>
> Why then do our medical colleges exist? Are they profitable institutions? There is not a man here tonight who does not know that there is not in any one of the four colleges in this city a single professor or instructor who is paid a salary commensurate with the time he is supposed to give to his work. Nay more, we all know that only a few of the many professors whose names adorn the medical college catalogues are supposed to draw any salary at all and that of the remainder a large number *actually pay money*, [the emphasis is Dr. Munn's] either directly or indirectly, for the privilege of lecturing and the inestimable honor of wearing a title.
>
> Why then *do* our medical colleges exist? Is it any especial honor to wear the title of "Professor?" Answer the question for yourselves. At least eighty of our four hundred doctors in this city are Professors or Instructors in medical colleges and probably eighty others could have occupied similar positions had they so desired.
>
> It must be admitted that one doctor out of every five is a very high percentage to be fit to *teach* medicine. . . .
>
> Does the community demand colleges or home made doctors?
>
> Far from it.
>
> The community is profoundly ignorant of our colleges, of our faculties, of our facilities or of our attainments. The people are simply indifferent to us and our aims, our ambitions, our strifes, our enmities, our friendships and our jealousies. . . .
>
> Why then, oh why, do our medical colleges exist?

---

[15] Flexner, Abraham: Medical Education in the United States and Canada, *Bulletin No. 4*, The Carnegie Foundation for the Advancement of Teaching, New York City, 1910.

[16] Claman, op. cit., Part II, p. 6.

[17] Munn, William P.: "Medical Education in Denver," *The Colorado Climatologist and Denver Medical News*, 1:1, 1894-5.

Is it because their facilities for instruction are so great that it would be wrong not to put them to use?

On the contrary it is a fact which cannot be successfully denied that not one of the medical colleges of this city is as fully equipped for teaching medical science as a complete school should be. It is a fact that the united laboratories of the whole four schools have not sufficient equipment for one good laboratory.

In the effort to avoid invidious comparisons it is wisest not to mention any particular branch of study or any particular school, but I feel sure that no member of the faculty of any college in this city can rise from a conscientious perusal of their catalogues and after a period of free self communion deny my next statement which is: That with their present incomplete facilities for instruction, with almost no equipment, lacking proper buildings, and proper materials, lacking endowments and lacking income, the schools of this city are pretending to teach medicine when their instruction is little more than a travesty upon real medical education, judged by modern standards.

Dr. Munn conceded that the clinical teaching was probably the best part of Denver medical education at the time.

. . . . The dispensaries are treating thousands of patients, treating them well and utilizing them to the utmost in the instruction of students. If modern medical education were based on purely empirical methods, I would say unhesitatingly that in Denver at present medical education is almost as thorough as it is in good schools elsewhere. But the real science of medicine is not empirical. Without sound scientific practical training in the fundamental medical sciences it is not possible to give students the best medical training.

Teach men the science of medicine and they will be able to master the art of its practice even without further instruction, and to advance in it. Teach them the art only – and that is what clinical teaching does – and you will have practitioners who will rarely if ever do anything to advance the science.

Dr. Munn went on to bestow some acid remarks on the free dispensaries operated by the schools (even though he had praised their care of patients). "The free dispensary," he declared, "is the weapon with which the medical profession is being slain in the house of its friends." Patients were being taught to "expect free medical attendance," and half of them could afford to pay the fees of a private physician. His conclusion forecast one of the key recommendations which the *Flexner Report* would make nearly 15 years later:

The three regular medical colleges of this city ought to be consolidated. If the brain, the energy and the capital now divided among three institutions were united, and a harmonious profession gave of their best intellect and best energies to the support of that one school, it might be made a truly representative institution, and one of which any state might be proud. . .

Only two medical schools still were operating in Colorado when Flexner and his associate paid their visit in April, 1909. He recorded that Colorado then had a population of 653,000 served by 1,690 physicians, or a ratio of 1:328. Nationally, the ratio was 1:568.

Flexner's Comments Sharply Critical

The Denver and Gross College of Medicine, then consolidated for seven years, was, Flexner found, "Nominally the medical department of the University of Denver, with which institution it has, however, only a six months' contract; to all intents and purposes, a proprietary school, managed by its own faculty."[18] The *Report* went on: "*Entrance requirement:* Less than high school graduation, loosely enforced. . . Teaching staff: 44 professors and 35 of other grade, none of them giving their whole time to teaching. *Resources available for maintenance:* The school has no resources but fees, amounting to $12,624 per annum (estimated)." So far as laboratory facilities:

Its equipment consists of a chemical laboratory of the ordinary medical school type, a dissecting-room, containing a few subjects as dry as leather, a physiological laboratory with slight equipment, and the usual pathology and bacteriology laboratories. There is a total absence of scientific activity. The rooms are poorly kept. A few cases of books are found in the college office behind the counter.

The *Report* then described the school's clinical facilities:

The college owns a new and exceedingly attractive dispensary building. Separate rooms nicely equipped are occupied by the various specialities. The attendance averages 90 a day; the records are inadequate. There is an out-patient obstetrical service.

For hospital facilities the school depends largely on the County Hospital, the management of which is political. Clinics are held daily from 8:30 to 10, "purely through courtesy." Students from all schools merely "look on;" they are "not much at the bedside." Obstetrical work is limited, post-mortems rare. Hospital staff

[18] Flexner, op. cit., p. 197.

appointments are secured through "pull;" the college must take into the faculty the men who are already on the hospital staff. Supplementary opportunities are furnished by several local institutions. In several of these, however, the clinics are not regularly scheduled: "announcements appear upon the bulletin board of the college."

Flexner then turned his attention to the other school in Boulder. It had only 85 students compared with the 109 in Denver.[19] "*Entrance requirement:* A four-year high school education or its equivalent. Credentials are passed on by the dean." The faculty numbered 45, of whom 25 were professors and 20 of other academic grades. The medical school had a budget of $28,000, of which $4,043 came from fees, and the total University income was $200,000 per year. The *Report's* analysis was as follows:

Laboratory facilities: the school is in general satisfactorily equipped to do undergraduate teaching in the medical sciences. Full-time men are in charge of pathology, bacteriology, and physiology, though the departments lack trained assistants. Histology and embryology are taught in the department of biology. The chair of anatomy is occupied by a non-resident surgeon. There is a good library, with a subscription list including the best German and English journals. A regular fund is available for the purchase of books and apparatus.

Clinical facilities: The university hospital is entirely inadequate, even though the school is small. It contains 35 beds and averages 16 patients available for teaching. Its management has only recently been modernized. It now contains a clinical laboratory where students work, keeping excellent records of their findings. There are from 12 to 15 obstetrical cases annually in the hospital; these are supplemented by an out-patient service. The dispensary is slight.

Flexner went on to sum up:

The state is overcrowded with doctors. It can therefore safely go to a higher standard; indeed, the new law provides that after 1912, all applicants for license must have had, previous to their medical education, a year of college work. As this is a practice, and not an educational, requirement, the Denver school may still continue to train low-grade men for adjacent states; but it is probable that if it continues on a standard below the legal practice minimum, it will be too discredited, and if it arises to the aforesaid minimum, too much reduced, to continue. The state university alone, so far as we can now see, can hope to obtain the financial backing necessary to teach medicine in the proper way regardless of income from fees, and to it a monopoly should quickly fall. Its laboratory facilities are steadily increasing, but adequate clinical resources are not at present assured. It is important, therefore, that as a first step the state university gain access to the clinical facilities at Denver, from which it is now cut off, first, by a constitutional provision prohibiting the state university to teach except at Boulder, second, by the fact that the City Hospital is in the hands of the local school. These conditions, so common in American cities, are plainly against the general interest of the community. It may be that an arrangement can be made by which the Denver and Gross school will be handed over to the university, thus clearing the field of all obstacles to the upbuilding of a creditable school; for as Boulder is practically a suburb of Denver, the difficulties in the way of effective management at Denver are not insuperable. Whether the entire medical school shall be permanently concentrated at Denver or, following the Ann Arbor plan, a liberally supported hospital at Boulder be relied on to overcome the disadvantage of location in the matter of clinical material, need not be decided just now. The important steps to take at this moment comprise (1) passage of the constitutional amendment opening the clinical facilities of Denver to the state university, (2) more liberal state appropriations for the medical school, and (3) the consolidation of the Denver and Boulder schools as the medical department of the state university.

In a footnote, Flexner added that as his *Report* went to press, "announcement is made that a consolidation of the Denver and Gross School with the medical department of the state university has been arranged." There had been a meeting of the Deans of the two schools which came to the decision that "schools without adequate endowment could not conduct medical education according to modern standards; that a union of the Denver and Gross and the State School would have the substantial and probably, the financial support of those institutions interested in the establishment of medical education in the United States upon a high plane."

In the spring of 1910, the executive board of the Denver and Gross College presented an ultimatum to the trustees of the University of Denver demanding that they either grant the medical department sufficient finances for the support of a modern Class A medical school, or the faculty would be unwilling to conduct the school, which would be a second-rate institution.

[19] Ibid., p. 198.

The trustees decided they were unable to support a Class A school and withdrew their objections to the union of the two schools. Accordingly, in June 1910 an agreement was reached to consolidate the two schools, to be operative in January 1911.[20]

The Denver Homeopathic Medical College

When the plain-spoken Dr. Munn talked in 1894 of the three "regular" medical schools in Denver, he was quite patently excluding from consideration the Denver Homeopathic Medical and Hospital Association. Homeopathy was a controversial issue of the times, and the disciples of Samuel Hahnemann with their therapeutic regimen of minute dosages were not in general professional favor. The Denver Homeopathic Medical College was opened in October 1894 as a stock organization with 26 students enrolled. It is listed in the Denver Directory of 1895 as being

The Denver Homeopathic College and Hospital, built in 1898 at Park Avenue and Humboldt Street. The school lasted until 1909. (Courtesy of University of Denver)

located on the fifth floor of the Pioneer Building at 1509 Larimer Street, where it remained until 1898, when it was reincorporated as an eleemosynary institution not for profit with its name changed to "Denver Homeopathic College and Hospital." At this time, a three-story building was erected at the corner of Park Avenue and Humboldt Street.[21] In 1907, the school was identified as the "College of Physicians and Surgeons, a Department of the Westminster University." Although the school published several journals, one of which was called the *Critique*, it experienced great difficulty in acquiring sufficient resources to operate in a suitable fashion, and its sponsors terminated its existence in 1909.[22]

---

[20] Harlow, W. P., and Stover, G. H.: "Report of Committee on Medical Education," *Colorado Medicine*, 8:327-329, 1911.

[21] The Denver Homeopathic College and Hospital, *Seventh Annual Announcement*, Session 1900-1901, Denver, p. 9.

[22] Sewall, "Historical Sketch of the Medical Department of the University of Colorado," op. cit., p. 371.

The Bolles Institute of Osteopathy

To complete the roster of schools of healing in Colorado, mention should be made of the Bolles Institute of Osteopathy, which had its beginning in 1895 at 832 East Colfax Avenue as the Western Institute of Osteopathy. The corporate name was changed in 1897 to honor its founders, Drs. Jeanette (Nettie) Hubbard Bolles and Newton Alden Bolles, both graduates of the University of Kansas who were trained in osteopathy under its originator, Dr. Andrew T. Still, at Kirksville, Mo. The school moved to 1457-59 Ogden Street in 1901 and remained there until it closed in 1904. One of the school's cards advertised: "Confinement cases attended at home." Admission requirements were a high school diploma, a first-class teacher's certificate, or a satisfactory examination in English language, arithmetic, United States history, geography and physics, including mechanics, hydrostatics, hydraulics, acoustics and optics. Tuition was $150 a year. The first graduates in the class of June 1899 were: Mrs. Elizabeth C. Bass, George W. Hubbard, Mary (Bolles) Darley, and Mary Riggs Noble.[23]

The Bolles Institute of Osteopathy at 1457-59 Ogden Street, 1901-1904. (Courtesy C. Robert Starks Sr., DO)

The University of Colorado School of Medicine

We turn now to the annals of the only school of medicine to survive the years, and the successor to two of its contemporaries by merger.

Only two years after the Boulder City Town Company was created in February 1859 to formalize a rough gold rush settlement on the banks of Boulder Creek, the first Territorial Legislature, looking far ahead, passed a bill establishing Boulder as the site of the state university. The bold dream would come but slowly to reality.

In 1872, a gift of 51 acres of hilltop land was presented by three private citizens of Boulder to serve as a campus, and its first building, the present "Old Main," was constructed in 1875-76.

[23] For information about this school and the accompanying photograph, the authors are indebted to Nolie Mumey, MD, C. Robert Starks, Sr., DO, and his wife, Esther Bolles Starks, DO, a daughter of Drs. Jeanette and Newton A. Bolles.

When Colorado was admitted to the Union on August 1, 1876, its new constitution formally recognized the University, but it would be September 5, 1877, before classes began with two teachers and 44 students.[24] The first President of the University was Joseph Addison Sewall, MD, born at Scarborough, Maine, in 1830 and an 1852 graduate of Harvard Medical School. The first President was a man of pioneer courage and great vision. He showed indomitable fortitude in even accepting the presidency of so scant a university, and he received little encouragement and often ridicule about the infant university's chance of survival. He was a progressive man and stressed science and the study of history and of government as a basis of citizenship. His task of laying the foundation of the university was tremendous; for he was not only the President, but also teacher, business manager, and lecturer throughout the state.[25]

"Old Main" of the University of Colorado shortly after it was built in 1875-76 on the windswept hilltop overlooking the town of Boulder. The Medical Department, organized in 1883, occupied a portion of the third floor. (Western Historical Collection — Norlin Library, University of Colorado)

Despite a small enrollment, President Sewall moved the University forward, and the years 1883 and 1884 saw the establishment of several new branches of instruction, including a Department of Medicine, a Department of Pharmacy, a Conservatory of Music, and a course in Engineering. The specialization was an apparent effort by Dr. Sewall and the Regents to make of their struggling little college a true university.

By an action on May 5, 1883, the Board of Regents directed the President to organize a Department of Medicine and Surgery with himself as Dean in view of his MD degree, although his primary scientific interest appears to have been analytical chemistry, a field in which he had

[24] Davis, op. cit., p. 24.

[25] Mumey, Nolie: "Joseph Addison Sewall, 1830-1917, Pioneer Physician, Educator and First President of the University of Colorado," *Brand Book: 1966*, Denver Posse of the Westerners, 1967, pp. 93-107. (Also reprinted as a separate pamphlet with same pagination.) See also Davis, op. cit., p. 24.

achieved a measure of national recognition before he came to Colorado. Associated with him to form the first medical "faculty" was Dr. William R. Whitehead as Professor of Anatomy.[26] Dr. Whitehead, a Virginian, had graduated in medicine from the University of Pennsylvania in 1853 and the University of Paris in 1860. He served as a Russian surgeon during the Crimean War and was decorated for his services. Later he was a Confederate surgeon in the Civil War. Coming to Colorado in 1872, he was one of the early members of the Colorado Medical Society and later became its 14th President. During the first year of the new medical course he lived in Boulder during the week, returning to his home in Denver only on weekends. He soon became Professor of Surgery as well as Anatomy.[27]

Shortly after the action by the Regents, President Sewall sent a circular to the Colorado medical profession announcing his new school. The announcement said in part:

> If the present evil of "Two terms of not less than twenty weeks each," now so prevalent, was to be the basis of instruction given, the profession and people of Colorado might well inquire as to the necessity of more schools of medicine. But such is not the intention; the curriculum is to consist of a four years graded course of nine months each, giving the student ample time to both acquire and digest the necessary instruction. . . .
>
> While the interests of higher medical education urgently demand a systematized and longer course of medical studies, they also imperatively require that the student should have been prepared for this medical instruction by a liberal literary or scientific education, the lack of which may seriously impair the otherwise good results of thorough medical instruction.[28]

Half of the third floor of then-new "Old Main" was fitted out for the Department of Medicine. Tuition was free, and the only charges were a matriculation fee of $5 for residents of Colorado and $10 for non-residents, and a diploma fee of $10. Requirements for admission, except for those students who already had passed the University admission examination, were a degree in Letters or Sciences from a recognized college or scientific school, or a high school diploma. Candidates also had the option of passing a special admission examination. Although the *Catalogue* for 1883-84 said that a "well-arranged and commodious hospital" had been established on

The original University Hospital in Boulder, built about 1883-84 in what was then the far southeast corner of the campus. There were 30 beds provided for the teaching of medical students. (Denver Public Library)

[26] Davis, op. cit., pp. 47-49.

[27] Sewall, "Historical Sketch of the Medical Department of the University of Colorado," op. cit., p. 372.

[28] Davis, op. cit., p. 47.

the campus under direction of the medical faculty and open to "patients resorting to the college for treatment," there must have been a slight delay in the realization of this facility. The *Calendar* of the University for 1885-86 notes that "during the last year" the brick hospital had been erected. This was the building, altered several times over the years, which became Kent Hall in 1893, for a short period housed the School of Law, later became the home of the College of Music and then gave way following World War II to the present University Memorial Building. It was located at what then was the southeast corner of the campus and was modeled on an Army post hospital, with a one-story ward wing extending east from a two-story central administrative building. There were 30 beds.

First Class Enrolled Two Students

Despite the bold aspiration in President Sewall's announcement circular, the medical course was reduced nine months later to three academic years of nine months each. But on September 5, 1883, the Department of Medicine had opened its doors to its first class – consisting of two students. The curriculum included anatomy, physiology, chemistry and botany for that first year. In 1884 the faculty was increased by two physicians from Boulder and three from Denver, and 19 students matriculated. But the medical course, along with the parent University, was finding the going tough, and great faith in the future was demanded of the founders of both. Support from outsiders was meager. Remarks appeared in the press to the effect that "Boulder University is an infidel institution," and "Boulder has discontinued its grammar grades to start a university."

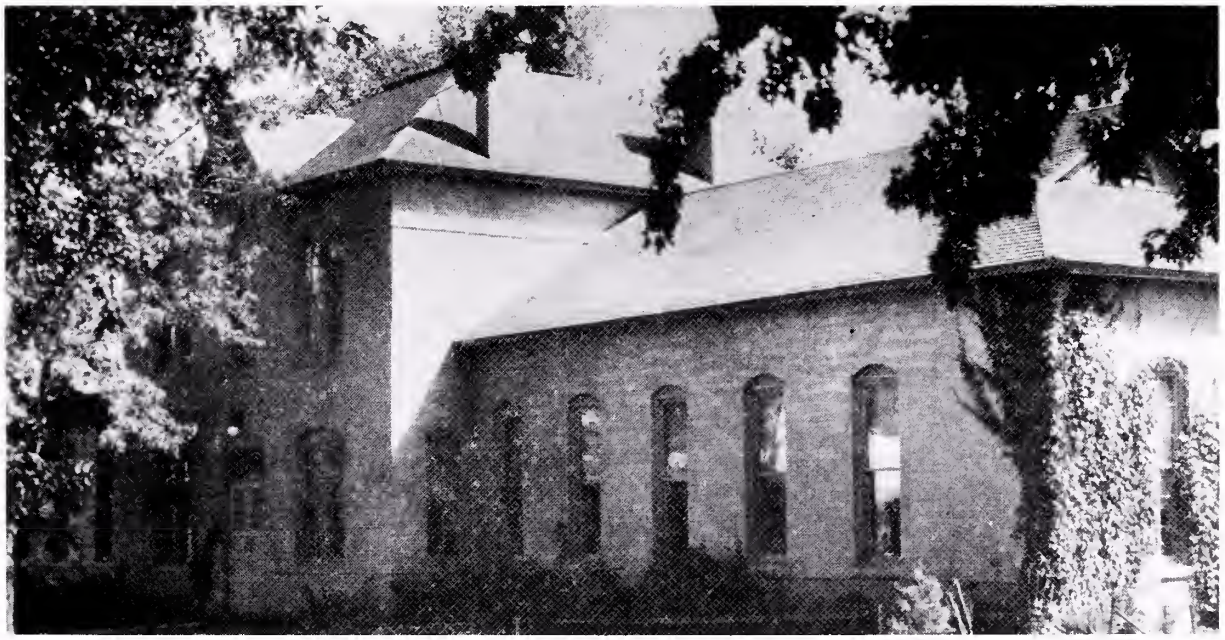
The Department of Medicine plunged ahead, however, and in 1885 the medical faculty was enlarged to include, in addition to President Sewall as Dean and Professor of Chemistry and Dr. Whitehead as Professor of Anatomy and Surgery, the following: Charles Ambrook, MD, Theory and Practice of Medicine; James H. Kimball, MD, Physiology, Materia Medica and Therapeutics; Thomas H. Evarts, MD, Obstetrics and Diseases of Women; H. W. McLaughlin, MD, Pathology and Histology; George Clary, MD, Ophthalmology and Otology; and Judge Platt Rogers, Medical Jurisprudence.

The first MD degrees were awarded in 1885 to Henry Carter Evans and Harrison Edward Stroud. In 1886, there were two more medical graduates, Gustave Beauregard Blake and Hollis Illsey Bragdon, but the Class of '85 fell to one, Jacob Campbell. During these early years there were only seven to 14 students attending the medical course, and it became a question with the Regents as to the advisability of continuing the school. The faculty made a routine annual pilgrimage to a meeting of the Regents to present arguments in favor of hanging on.[29] By the end of the 1885 academic year, the Medical Department was in the middle of a major controversy concerning the University brought on by the fact that the Legislature had appropriated only $21,000 for operation of the entire University. Dr. Whitehead protested that medical education was not receiving adequate support in that it was allocated only $2,600 for all expenses, including salaries. (His own at that time was $1,500 a year.) In the course of the debate, Dr. Whitehead came into dispute with Lt. W. F. C. Hasson, Assistant Engineer, U. S. Navy, who was Professor of Mechanics and Applied Mathematics, regarding the resources allocated medicine in comparison with the rest of the University. The students sided with Dr. Whitehead and hanged Lieutenant Hasson in effigy from the tower of Main. When the Regents refused to increase the $2,600 allocation, Dr. Whitehead resigned. At a later meeting of the Regents, Dr. James H. Kimball, who had been Secretary of the medical faculty since 1884, submitted a plan based on a volunteer faculty of practicing physicians who would receive only token remuneration for their work. The plan was accepted, and the Regents voted to continue the Medical Department. Near the end of the 1886 academic year, the Regents adopted a motion which permitted Dr. Kimball, who supervised the hospital, to retain all fees collected from patients for that year in compensation for his services as Secretary of the medical faculty.[30] Dr. Kimball, a Denver doctor whose address was listed as the "Steele Block" at 16th and Stout Streets, served as Secretary until 1892, and was recorded as Dean in 1888, when there were still only 12 students enrolled, including the first woman, Fannie M. Lake.

[29] See also Claman, op. cit., Part I, p. 5.

[30] Davis, op. cit., pp. 49-50.

Medical Hall, built on the Boulder campus in 1888 and later known as the Anatomy Building. The building, which stood just west of the present Chemistry Building, served the School of Pharmacy for a time and was torn down in the 1920s after the new Arts and Sciences Building was built. (Western History Collection, Denver Public Library)



"Old Medic" in its later days on the Boulder campus. This building began as the original University Hospital with only an east wing attached. Photo shows the west wing which was subsequently added. At one time it was known as Kent Hall, and it served both the School of Law and part of the School of Medicine. Eventually, it was taken over by the College of Music until after World War II, when it was demolished to permit construction of the present University Memorial Center. (Collection of Richard W. Whitehead, MD)

Class sessions in these years must have been brief, since many members of the faculty lived in Denver and spent only about one day a week in Boulder. The journey to Boulder took about two hours via the old "Colorado Central" railroad to Golden and thence overland to Boulder.

An announcement by the Medical Department in 1885-86 had stated confidently that: "Clinical instruction will form a prominent feature of the courses. The customary medical and surgical clinics will be held in the hospital. The bedside instruction will be thorough under the guidance of teachers."[31] Despite the declaration, the hospital was small, the population of Boulder scarcely more than village proportions, and there was a scarcity of clinical cases. Dr. Henry Sewall, a keen and critical observer throughout all the early years of medical education in Colorado, felt that the strength of the medical course, administratively and professionally, resided in the Denver contingent which was commuting faithfully to and fro. Sewall commented:

> Students must have had ample time for cogitation between visits of the alien staff. Certainly the melange of knowledge supposed to endow the general practitioner was typified in the versatility demanded of Dr. McLauthlin, whose courses covered, from first to last, about the whole range of medical science and art. The course of study now embraced three years of nine months each. "The graduate must give evidence of having studied medicine for at least three years under direction of a regular graduate and practitioner of medicine of good standing, including the time spent at this School." He must write a thesis on a medical subject and present it to the secretary at least one month before the close of the session. He must pass the required examinations.
>
> The good old preceptor was still the mordant to bite and bind the *ex cathedra* teaching from the rostrum.[32]

Medical Hall Built in 1888

In 1888, the Medical Department acquired an additional facility, a two-story brick building christened "Medical Hall." This structure, also known later as the Anatomy Building, was put up at a cost of $2,540 a little west of where the Chemistry Building now stands and served the University until the early 1920s, when it was torn down. The medical graduating class of 1888 again consisted of a single student, Elmer E. Cummings, and the following year Irvin Edmund Bennett was the only scholar to receive the MD degree. The Announcement of the Medical Department for 1890 stipulated the following course of study:

> *First Year* – Anatomy and dissection, chemistry, physiology, histology, materia medica, therapeutics, and medical botany.
>
> *Second Year* – Anatomy and dissection, chemistry, physiology, materia medica, therapeutics, pathology, practice of medicine, surgery, obstetrics, physical diagnosis, ophthalmology, otology, and clinical medicine.
>
> *Third Year* – Practice of medicine, surgery, obstetrics, diseases of women, diseases of children, therapeutics, ophthalmology, otology, laryngology, clinical medicine and surgery, clinical gynecology, hygiene and public health, medical jurisprudence, nervous and mental diseases, physical diagnosis, physiological and medical chemistry.

The University library in Main now contained 5,000 volumes and was open to medical students.

The medical Class of '90 had four members: William Joseph Hosford, George Sterling Johnson, Levin Powell Logan, and Carl Friedrich Wolfer. In that year, Dr. Jeremiah T. Eskridge of Denver, a powerful figure in the Colorado medical profession and an authority in his specialty of neurology and mental diseases, joined the medical faculty as another non-resident lecturer. He would exert a strong influence on the medical school during the next few years, and would serve as its Dean 1892-1896. Dr. Eskridge and Dr. McLauthlin, aided by two Regents, began a campaign to counter the shortage of clinical material in Boulder by moving the last two years of the medical course to Denver. The University Catalogue for 1891-92 describes the Medical Department for the first time as a "Medical School" and states:

> By vote of the Regents at a meeting on April 6th, [1892] it was determined that two years of the Medical School be conducted in Denver, the first year and the graduation being retained at the seat of the University.

---

[31] Sewall, "Historical Sketch of the Medical Department of the University of Colorado," op. cit., p. 373.

[32] Sewall, *idem.*

This arrangement gives two years of the best clinical advantages to the students, and thereby puts this department upon a most excellent basis. The faculty will be much enlarged and greatly strengthened by the best medical talent in the State.

As this important change was taking shape, MD degrees were conferred upon five students – Charles L. Edmundson, Peter W. Fischer, Andrew Hayes, Alonzo M. Keables, and Nellie Frances Mayo, the first female graduate – at the 1891 Commencement.

The move to Denver was effected in 1893, and the division of the school in Denver attracted to the faculty many of the leading practitioners, some of whom had been associated with the Denver Medical College and the Gross School of Medicine. The move, however, produced a bitter fight between the University of Colorado and Denver College of Medicine. It was illegal under a strict reading of the State Constitution for the University to conduct medical classes in Denver at that time, but this would be sustained only after several lawsuits. Part of the case was argued in the University Catalogue for 1892-93:

The Medical Department of the University of Colorado has neither wholly nor in part been removed from Boulder to Denver. This department is still with the State University in Boulder, where all executive work is done, but owing to the scarcity of clinical material here, the Regents have authorized the Faculty to give the instruction in medicine in Denver during the second and third years of the course until sufficient hospital advantages are secured in Boulder. All students of this department will register in Boulder as heretofore, and the entire first year's instruction will be given here, where every facility will be furnished the student to pursue his studies in Anatomy, Physiology, Chemistry and Histology. At stated periods during the year all students of this department will meet at the State University and participate in important exercises. Graduating exercises of all departments must be held at the University buildings in Boulder, and no degrees will be conferred at any other place. . . .

In the meantime, the Denver division of the school grew rapidly, and in 1895 the curriculum was lengthened to four years. The faculty had grown considerably. Tuition was assessed for the first time and amounted to $35 per year. The Denver branch of the school apparently was located at 1717 Stout Street (on the west side of the street just northeast of 17th Street), and the 1892-93 Catalogue describes the quarters as having "two large lecture rooms, and several other rooms well adapted for clinical purposes, so that a number of clinics can be conducted at the same time." Enrollment increased six-fold, although the budget allocated by the University to the medical school was only $4,500 for 1892-93. As litigation continued its course through the courts, Dr. Clayton Parkhill succeeded Dr. Eskridge as Dean in June, 1896, serving for one academic year, and was followed in 1897 by Dr. Luman M. Giffin of Boulder, who had joined the medical faculty in 1887 as Professor of Anatomy and Physiology. In 1896, a School of Dental Surgery was opened in Denver under the auspices of the University in the same block on Stout Street.[33] This school continued in operation until April 1, 1901, when it was officially consolidated with the Dental Department of the University of Denver, to be known as the Colorado College of Dental Surgery.

Supreme Court Returns School to Boulder

In June 1897, the Colorado Supreme Court ruled that the University could not conduct classes elsewhere than in Boulder. The court-forced retirement of the medical school to Boulder apparently was considered temporary, since the Catalogue for 1897-98 announced: "In due time the people of Colorado will obtain for their University the legal right to conduct such part of the medical course in Denver as may seem advisable." Since the four-year course had been adopted in 1895, there was no graduating class in 1897, and the University decided to offer only two years of the curriculum in 1897-98, three years in 1898 and the entire four years again in 1899. This gave time for improving the facilities in Boulder. The former hospital was converted into a medical building, some classes were held in Hale Scientific Building, and a new hospital of 40 beds was built in 1898 on the crest of the hill overlooking Boulder Creek. The building still stands as an attachment to the Women's Gymnasium. Clinics were also held at the Colorado Sanitarium.

The School of Nursing was started in 1898 in connection with the School of Medicine and the new hospital. The nursing school offered only basic programs in nursing until 1942. These

[33] Douglas, William A.: *A History of Dentistry in Colorado*, 1859-1959, Johnson Publishing Co., Boulder, 1959, pp. 92-94.

A class of University of Colorado medical students observes as two Deans of the school, Dr. Jeremiah T. Eskridge, left, and Dr. Clayton Parkhill, right — the gowned surgeons with beards — attend a case of brain tumor in St. Luke's Hospital about 1895. This is believed to be the first use of sterile white gowns in Denver surgery. (Denver Medical Society Library)

basic programs consisted initially of a three-year program leading to a Diploma in Nursing, later revised to the present five-year course leading to a BS degree in nursing.

With return of the medical school to Boulder, many of the faculty members residing in Denver resigned, leaving a roster of only 12 in 1897. As the prestige of the University increased, however, more Denver physicians were recruited and by 1910 the visiting faculty from Denver numbered 16 plus one from Pueblo, giving a total medical faculty of 44.

The curriculum offered at Boulder during the years 1897-1910 provided two years of basic science, concerned with Anatomy, Chemistry, Physiology, etc., and a final two years concerned with Medicine, Surgery, Obstetrics, Gynecology, Pediatrics, etc. Much of the student's time was given over to lectures on the various subjects. Detailed notes in the Dean William P. Harlow papers[34] outline several of the courses. Typhoid fever was covered in six lectures, and there were 31 pages of notes on this disease. Other diseases discussed in the course on infections included typhomalarial fever, typhus, meningitis, scarlet fever, and pneumonia. Lectures on specific infectious diseases took up 137 pages in Dr. Harlow's notebook. Dr. Harlow, who was to succeed Dr. Giffin as Dean in 1907, attended 74 lectures in obstetrics and gynecology in 1898-99 which gave the essence of the contents of the leading obstetrical and gynecological textbooks of the day. The school was growing. By 1900, the graduating class numbered seven, and in 1901 there were eight MD graduates.[35]

[34] Harlow, William P.: Manuscript lecture notes in the Western Historical Collection, Norlin Library, University of Colorado, Boulder.

[35] Davis, op. cit., p. 101.

Dean Luman M. Giffin demonstrates anatomy to a class of students in Boulder during the 1890s. (Denver Post Library)

Despite the improvement in teaching at Boulder, there were many needs which went unfulfilled. There was a request in 1908 for "A new building for the medical department . . . for the following reasons: (1) the only space now available for the course in anatomy, dog surgery and cadaver surgery is afforded by a temporary shed or shack adjoining the stables, (2) the present medical building was originally designed to be used as a hospital, not for teaching purposes, (3) the present building affords but two recitation rooms, which are far too small even for the present classes, (4) classes are now held at widely scattered points both on and away from the campus with resulting great loss of time to the students in going to and from lectures, etc., (5) valuable and delicate apparatus has to be moved about at great inconvenience and danger of serious damage by breakage."

Other complaints involving the curriculum pointed out that the students were entering the third and fourth years unprepared in the first year's work. This was ascribed to over-indulgence in lectures, and it was recommended that textbooks be required and that the major part of the time in all courses which were not strictly laboratory or clinical be devoted to hard quizzes. It was also recommended that "students should be discouraged from practicing medicine among their fellows and be asked to send all work they can to the dispensary."

Criticism of the clinical years was offered, especially in medicine, pointing out that although there was a considerable abundance of patients (often over 20 per day), in order for the volunteer staff to get through in two hours "these cases are run through in a somewhat routine fashion, the students are not given the opportunity to examine or treat the patients but merely look on and learn what they can from what they see and hear."[36]

In discussing this era in the history of the University of Colorado School of Medicine, Dr. Henry Sewall wrote:

> Measured by the better standards of its time, the medical school in Boulder was a very small affair and was fully deficient in exuberance of opportunities for clinical instruction. It was as if a private practitioner in an age of automobiles were obliged to go without such a vehicle of progression.
>
> But its sponsors possessed assets of cumulative value. They maintained a high morale. They aligned themselves with the foremost ideals of advancing medical education. They maintained the standards of the medical curriculum. They concentrated on instruction in the fundamentals of medicine, and the smallness of

[36] Harlow papers, op. cit.

the classes must have increased the opportunities of the individual student. The essential success of their program was attested by the congratulatory report of the committee from the Carnegie Foundation for the Advancement of Teaching in its investigation of the status of medical education.[37]

Dr. Henry Sewall at work in his laboratory. (Dr. Cuthbert Powell papers, courtesy Dr. Robert L. Stearns)

Clinical Instruction in Denver Approved

As has been noted, negotiations for a return to Denver of clinical teaching by the University of Colorado school were concluded in June 1910 with the agreement for merger of the school with the Denver and Gross College, which was to become operative in January 1911. The Department of Medicine Catalogue for the 1910-11 academic year summed up:

> The Denver and Gross College of Medicine has been incorporated with the Medical School of the University of Colorado. The Denver and Gross School has discontinued teaching the subjects of the first two years. On or before January 1, 1911, the School will also discontinue the teaching of the remainder of the medical curriculum. Upon the passage of the Constitutional Amendment permitting the University to teach two years of the Medical course in Denver, to be voted on at the next general election in November, 1910, the first two years only will be taught in Boulder. The remaining two years will be taught in Denver, where hospital and other clinical facilities may be had in abundance. Hereafter all the medical teaching in the State of Colorado will be under the auspices of the State University.[38]

The Constitutional amendment was adopted nearly four to one by the voters in November, and the medical school immediately prepared for its return to Denver. The Regents leased the "old [James] Archer residence" at 13th and Welton Streets (1307 Welton Street), remodeled it, and classes were in session in January.[39] The Archer mansion provided two or three parlors as the only lecture rooms. There was a one-room Dean's office, a pharmacy under the stairway, a single laboratory on the third floor. The basement and second floor served duty as outpatient division. "The atmosphere was invariably tinctured by the odor of roasting coffee beans from across the alley [where there was a coffee-roasting plant]. Students assembled on the front porch to comment on the passing throng. . . ."[40] The Denver City and County Hospital (which had been the

[37] Sewall, "Historical Sketch of the Medical Department of the University of Colorado," op. cit., p. 376.

[38] Idem.

[39] Davis, op. cit., p. 159.

[40] Sears, Thad P.: "The Work of Dedicated Men," *University of Colorado School of Medicine Quarterly*, 3:(No. 3) 2, 1961.

Faculty and student body in front of the old Archer residence at 13th and Welton Streets, Denver. This was the "campus" for Colorado junior and senior medical students from 1911 until 1925. (Medical Photography Department, University of Colorado Medical Center)

Arapahoe County Hospital until Denver became a separate county in 1902) became the principal teaching hospital. It was renamed Denver General Hospital in 1924. The dispensary of the Denver and Gross school on Arapahoe Street was closed, and the University of Denver leased the Haish Building to an engraving company.[41]

In March 1910, it had been announced that Dean Harlow had just returned from a trip to attend a meeting of the American Medical Association in Chicago. At the session, he had gained for the medical school a Class A rating, "an enviable rank among the medical schools of the country." Admission requirements and curriculum also were undergoing important changes. By 1910, entrance requirements had been increased to two years of college studies in addition to the standard high school course, including Latin, and a certificate of good character signed by two doctors was necessary. The two preliminary years of liberal arts collegiate work required completion of courses in physics, chemistry, biology, and either German or French.[42] It was now possible for a student to earn a BA degree after four years and his MD two years later. Tuition was increased to $75 a year. In Boulder, resources for teaching the basic medical sciences were enhanced by construction in 1911 of the Henry S. Denison Memorial Research Laboratories as the result of a gift from Mrs. Charles Denison, mother of Dr. Henry S. Denison, who had been an instructor in medicine.[43] The University Catalogue for 1914-15 described the Denison Laboratories: "The building contains special rooms and equipment for research and advanced work in chemistry, physiology, pathology, bacteriology and clinical medicine, together with the necessary accessory rooms such as a library, cold room, incubator room, operating room and sterilizer rooms, dark rooms, etc., open to all who have the necessary educational prerequisites. . . ." The building still stands on the Boulder campus to the west of the Henderson Museum. With the granting of 39 MD degrees at the Commencement of 1911,[44] a note of optimism began to prevail in the affairs of the school. The University was reported at that time to be the only institution giving a complete medical course between the Missouri River and the Pacific Coast,[45] and the students predicted boldly:

> The time is certainly not far distant when the Colorado School of Medicine will be recognized from ocean to ocean as the one great medical school of the West, and the peer of any school, east or west.[46]

---

[41] Davis, op. cit., p. 159.

[42] Ibid., pp. 159-160.

[43] Ibid., pp. 217-219.

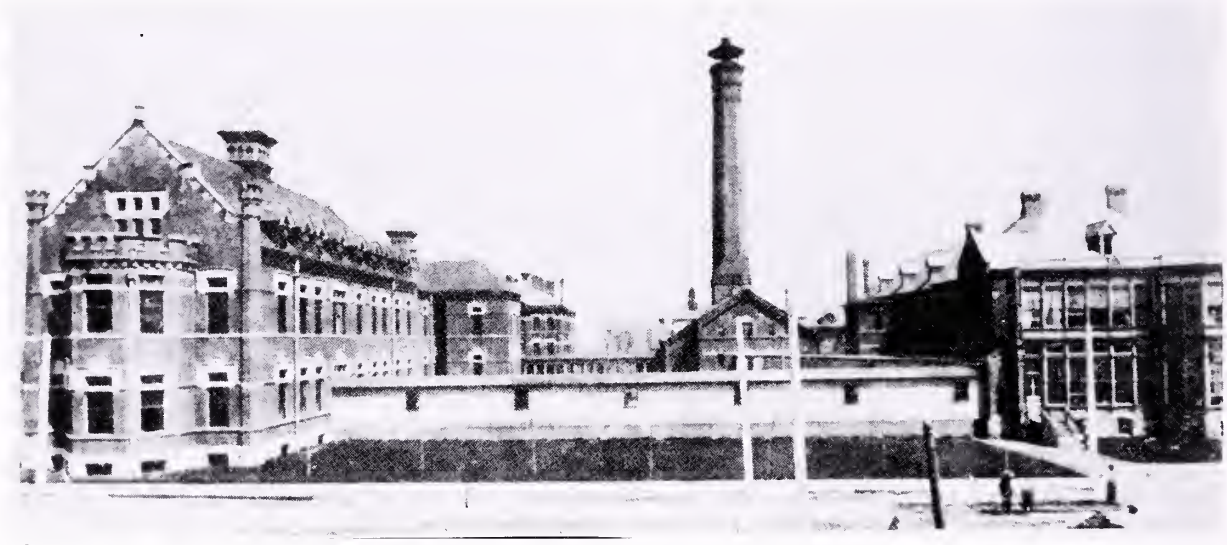
[44] Jobe, William E., and Hills, David K.: "The History of Medical Education in Colorado," *Rocky Mountain Medical Journal*, 55:68, 1958.

[45] Davis, op. cit., pp. 160-161.

[46] *Coloradoan*, 1911, p. 15.

In Denver, the Library of the Medical Society of the City and County of Denver, then housed in the Metropolitan Building Annex on Court Place at 16th Street, was made available for use by the faculty and junior and senior medical students. This well-appointed library served until the new school was built in 1924. The faculty was enlarged by the addition of those men who had served the Denver and Gross College. Eighty-three faculty members were listed, 44 of whom were full professors, but there were only four full-time teachers. Up to the time of the merger, the Boulder school had graduated 270 physicians, and the graduates from the Denver and Gross College numbered 620.

A year later, the school began to offer graduate and postgraduate courses. One of the most revered members of the faculty, Dr. Edward Jackson, a distinguished ophthalmologist, was a strong advocate of such instruction. It was largely through his offices that a summer postgraduate course in ophthalmology and otolaryngology was started in 1912. The course has been offered annually since 1915 — except during World War II — to the present day, and it is probable this was the earliest such course offered in the United States.[47] A graduate course leading to the degree Doctor of Ophthalmology also was soon started.



The old Denver General Hospital was the principal teaching hospital for the Medical School early in the century. Photo circa 1901. (Collection of Richard W. Whitehead, MD)

Collaboration on Postgraduate Education

Over the many years, the Colorado Medical Society and the University of Colorado School of Medicine have collaborated to provide graduate and postgraduate instruction for members of the medical profession. Beginning in 1912, in the endeavor to stimulate scientific investigation by its members, the Society offered a prize of $100 for the best research contribution by one of its members. The prize was discontinued in 1914 because of some dissension over terms of the award.[48] In 1919, a committee of the Society outlined a course of lectures to be given by selected teachers to its members in 10 outlying communities.[49]

Dr. Livingston Farrand, a graduate of the Columbia University College of Physicians and Surgeons, became the fourth President of the University of Colorado in 1914 and although his tenure was interrupted by World War I service, he took a particular interest in the rapidly devel-

[47] Harlow, W. P., and Stover, G. H.: Report of Committee on Medical Education, *Colorado Medicine,* 8:327, 1911.

[48] House of Delegates, Prize for Original Medical Research: *Colorado Medicine,* 9:321, 1912, and 11:394, 1914.

[49] Colorado State Medical Society, Medical Extension Work for 1920: *Colorado Medicine,* 16:286, 1920. See also, Mugrage, Edward R.: "Medical Education and the State Medical Society," *Journal of the American Medical Association,* 125:1099, 1944; and Sethman, Harvey T., "The Last Ten Years and the Outlook," *Rocky Mountain Medical Journal,* 36:778, 1939. Since 1919 the Society has been active on a continuing basis in offering opportunities in postgraduate education to practicing physicians and has sponsored numerous annual conferences and meetings devoted to scientific and professional education.

oping School of Medicine. Dr. William P. Harlow, after eight years of service, resigned as Dean of the medical school on September 18, 1915, and his resignation was accepted with regret by the Board of Regents. The Deanship was vacant for a year. Dr. R. C. Whitman, as Secretary, handled administrative chores in Boulder; Dr. Charles N. Meader, Assistant Professor of Medicine, directed the Denver program. The size of the faculty was reduced by the appointment of seven members to the emeritus list. Forty-four professors were retained, only four of them with full-time appointments, and 38 at lower academic ranks. In total, the faculty numbered 82 and the student body 81. Dr. Meader, who received his BA from Colby College in 1906 and his MD from Harvard in 1910, was one of the prominent younger physicians in Denver at the time. In June 1916, the Regents selected him to be Dr. Harlow's successor as Dean.[50] He would become one of the great builders of the School of Medicine.

The administrative problems of the school in its new location increased in complexity. Although there was improved access to clinical cases through use of the City and County Hospital as the principal teaching hospital, control of the hospital remained political, in the hands of the city's Health Commissioner. In 1915, the University entered into a contract with the Commissioners of the City and County of Denver. Under terms of the contract, the work of the city dispensary was to be diverted to the school and the medical administration of the City and County Hospital was to be turned over to the School of Medicine. This would give the University absolute teaching control of the largest hospital in the Rocky Mountain region and would allow it to select the house officers, interns, visiting staff and assistants. Despite this plan, it soon became clear that medical education could best be served if the University could obtain funds to build its own facilities, with a hospital large enough to provide ample teaching opportunities.

Meantime, the war was having its impact on medical education and the profession. An Army Medical Corps unit, Base Hospital No. 29, was first planned in 1916 under sponsorship of the City and County Hospital.[51] In April 1917 the Surgeon General of the United States Army ruled that physicians over 55 years of age could not be commissioned in the medical officers' reserve corps. As a result, Dr. Henry Sewall, who had taken an active role in organizing the unit at the City Hospital, was no longer eligible for appointment. Subsequently, the Executive Faculty of the medical school on July 6, 1917, obtained permission from the Board of Regents to undertake organization of the base hospital. After several months of work by Dean Meader and Drs. John W. Amesse and Cuthbert Powell, the staff roster for the reserve hospital unit was completed. The personnel were sworn in March 18, 1918, and the hospital was ordered to active duty at Camp Cody, New Mexico. Col. John B. Anderson, MC, USA, was assigned as commanding officer.

After a period of training, the unit was ordered to Camp Crane, Allentown, Pa., preparatory to foreign service. On July 4, 1918, the unit with trained personnel and complete equipment sailed for Europe. Base Hospital No. 29 was established on St. Ann's Road, Tottenham, London, where it cared for American soldiers from the 27th and 30th Divisions of the British Army. During the period of foreign service, several of the officers from time to time were detailed to other duties in England and France. The unit returned to Denver and was demobilized in March, 1919.

As medical education returned to a peacetime footing, attention again came into focus on the inadequate facilities of the School of Medicine, both in Denver and Boulder, and the need for a teaching hospital fully under University control. Dean Meader and Dr. George Norlin, who succeeded Dr. Farrand as President of the University in 1919, devoted much of their attention to providing the physical facilities which would accommodate the growing School of Medicine, and their efforts bore fruit.

Rockefeller Funds Pledged for School

President Norlin made a trip to New York City in 1920 and obtained from the General Education Board of the Rockefeller Foundation a pledge of $700,000 toward construction of a new School of Medicine and $50,000 per year for three years to assist in meeting operating costs. The gift was made conditional on an equal sum being provided by the State of Colorado for the building of a new and modern hospital for care of indigent citizens in conjunction with the school.

[50] Davis, op. cit., p. 235.

[51] "Base Hospital 29, 1916-1919," *Colorado Alumnus*, 33:5, 1943.

Opposite page photos: Top, the CU Medical Center under construction in 1923, viewed from Colorado Boulevard; center, looking at entrance to Colorado General Hospital as it appeared in the late 1930s, the School of Medicine building at right, Denison Library at left — the south portion of the Clinical Research Wing now rises above the center of this scene; bottom, Colorado Psychopathic Hospital (now Colorado Psychiatric Hospital) as it appeared when it admitted its first patients in 1925. (Medical Photography Department, University of Colorado Medical Center)

President Norlin proposed that the State Legislature provide $600,000 of the matching funds, and that $200,000 be raised by popular subscription. The Regents argued the case in an official statement made public at their meeting on February 15, 1921:

> . . . The Medical School of the University cannot be continued longer on the present basis. It is wretchedly housed. The laboratory building at Boulder was out of date twenty years ago. . . . The last two years of the medical course are carried on in Denver in an old rented house which was once a residence. The Medical School neither owns nor controls a teaching hospital. The situation is such as to demand that the Regents either discontinue the Medical School or completely rehabilitate it. The former alternative has been seriously considered but the Regents were loath to entertain it because they were convinced that Colorado should fall in line with progressive states in having a high-grade medical school and clinical hospital to foster the health and soundness of her people. The second alternative involved an expense so great that it was questioned whether the state alone could afford it.
>
> When Mr. Rockefeller, some months ago, gave the General Education Board a million dollars to improve medical education in this country, the Regents succeeded in interesting the General Education Board in the Colorado problems and the upshot of their negotiations with the board was the offer of $700,000 toward building and $50,000 a year for three years toward maintaining a first class plant for a united medical school in Denver, on condition that $800,000 be provided by the state. . . .
>
> This is not the offer of a gift to an institution; it is the offer of the General Education Board to assist the state of Colorado to care for its own health. . . .
>
> They [the Regents] have undertaken to raise $200,000 from other sources. The state is asked to contribute $600,000. The governor has urged the legislature to take advantage of the opportunity by levying a tax of one-fifth of a mill, or 20 cents on each thousand dollars of the state's valuation, for a period of two years only, in order to raise during the biennium the amount of $600,000. . . .[52]

The Legislature concurred, and during the fall and winter an extensive study of other medical schools and hospitals was undertaken by Dean Meader and a firm of architects selected for the project. As the planning progressed and negotiations were under way for a building site in the University Park area of South Denver, Frederick G. Bonfils, publisher of *The Denver Post,* offered the Regents on February 17, 1922, 17 acres of land in a then sparsely settled area of East Denver along Colorado Boulevard between East Eighth and East Ninth Avenues and extending eastward to Clermont Street. The gift was accepted ten days later and a valuation of $31,000 placed on the property. Mr. Bonfils' gift raised the total of private subscriptions to $105,000, and the campaign toward the $200,000 goal was pressed forward with vigor. Members of the medical faculty, led by Dr. O. M. Schere, pledged $30,000, and in May the Carnegie Foundation added $100,000. Mrs. Verner Z. Reed contributed $120,000, and the City of Denver $20,000. Ultimately, from all sources including the State's share of $608,000, a sum of $1,950,315 was available for this long step forward.[53]

In 1922 President Norlin urged a further amendment to the State Constitution which would permit the University to transfer the first two years of medical instruction to Denver and the new facility now on the drawing boards. An amendment was submitted to the people at the November election and was adopted.

Work began in the fall of 1922. Nearly 40 years later, Dr. Ward Darley would remember the site as encompassing a marsh in which he had once hunted frogs as a boy.[54] During the next two

---

[52] Davis, op. cit., pp. 271-273. See also, Meader, C. N.: "Future of Medical Education in Colorado," *Colorado Medicine,* 17:254, 1920.

[53] Davis, op. cit., pp. 274-275.

[54] The memories of Dr. Darley are contained in the address he delivered November 2, 1961, as Executive Director of the Association of American Medical Colleges to the groundbreaking ceremonies for a later expansion of the Medical Center. The address, "I Remember," was published in the April 1962 issue of the *University of Colorado School of Medicine Quarterly.*

years the original buildings of the Medical Center, Georgian in architectural style, took shape above the frog slough and the surrounding acres of open prairie. The buildings included the original Colorado General Hospital of 150 beds, five floors; the four-story School of Medicine wing adjoining the hospital on the northwest and designed for classes of 50 students each; the three-story, 80-bed Colorado Psychopathic Hospital, later to be renamed Colorado Psychiatric Hospital, southeast of the general hospital; and, northeast of the hospital, a residence hall for 90 nurses. A power, heating and laundry plant also was built farther east on the site.[55] The entire complex represented a spectacular change from the make-shift facilities the medical school had been using. Students moved in with the beginning of the 1924-25 academic year. Colorado General Hospital, Colorado's first state-owned facility for the medical care of indigent citizens, began admitting patients in January 1925; the first patients entered Colorado Psychiatric Hospital in February. A three-day dedication celebration began Jan. 23, 1925.[56] It was the opening of an exciting new era in both Colorado medical education and Colorado medical care.

Dean Meader School's First Great Builder

A large share of the credit for planning and building the new medical center should go to Dean Meader. Through careful planning and attention to details, the hospitals and school were so well constructed that they would admirably serve the education of generations of not only medical students, interns and residents, but also graduate students, nurses, medical technologists, and other paramedical professionals.

At the time school opened in 1924, tuition was raised to $55 per quarter and classes were limited to 50 students. One hundred and eight medical students were enrolled in all classes for the 1924-25 year.[57]

Ill health forced Dr. Meader to resign as Dean in 1925, and Dr. Maurice H. Rees, Assistant Dean and Professor of Physiology and Pharmacology, was appointed to the Deanship. In 1927, he was also appointed superintendent of the hospitals and ably served in these capacities until his death in 1945. Dr. Rees, a native of Newton, Iowa, brought to the position of Dean a broad cultural background in the biological sciences and a keen interest in clinical medicine. He held the PhD degree from the University of Chicago and the MD degree from Washington University, St. Louis. He had been trained under the dean of American physiologists, Dr. A. J. Carlson. Actively supported by Dr. Rees, research showed a lively growth during his Deanship. He was responsible in large part for the development of a sound educational program at the University of Colorado School of Medicine for the ensuing 20 years. He served on various committees of the American Association of Medical Colleges and one term as its president. He also was active in the work of the Council on Medical Education and Hospitals of the American Medical Association and in the educational programs of the Colorado State Medical Society.[58]

An important development of the next few years was in the field of psychiatry. Beginning with the completion of the Colorado Psychopathic Hospital in 1924, the vision of the volunteer neuropsychiatrists of the staff, especially Drs. George Moleen and Edward Delehanty, became a reality. The educational programs started by Dr. Franklin G. Ebaugh and his staff at the hospital, begun in 1925, were widely acclaimed. These programs were broad in scope, covering instruction in psychiatry to all classes of medical students, as well as to residents and interns. Postgraduate courses in psychiatry were given to the practicing physicians of the city and state. In 1934, a psychiatric liaison division was established in Colorado General Hospital. Early in the student's course of studies, emphasis was placed on the subject of psychobiology. Attention was called to the fact that all bodily illnesses have their mental counterparts, and that mental disorders may profoundly affect bodily functions, resulting in psychosomatic disorders. It was made

[55] Details on the construction, including architectural drawings, may be found in Meader, C. N.: "The University of Colorado School of Medicine and Hospital," *Colorado Medicine*, 21:287-306, 1924.

[56] Davis, op. cit., p. 275, and Sears, op. cit., p. 4-5.

[57] Whitehead, R. W.: "Teaching Methods Change at CU Medical School," *University of Colorado School of Medicine Quarterly*, 6: (No. 2) 3-5, 1964.

[58] *University of Colorado School of Medicine Bulletin*, 1:14, Silver Anniversary Issue, 1950.

clear that not all mental illnesses are incurable, a concept widely held as late as the 1920s. Emphasis on psychotherapy, occupational therapy, and other modalities led to many cures or arrested cases. Subsequently, insulin, metrazol and electroshock therapy were instituted, and, more recently, the tranquilizers have contributed to good results in certain psychiatric disorders.

Soon a program of resident training was begun. Many doctors who received this special training became prominent psychiatrists, and in 1971 hold important positions in practice and in medical schools through the country. The teaching of psychiatry to students, residents and physicians instituted by Dr. Ebaugh and his staff, as well as many new programs, have been ably carried on since his retirement.[59]

With the opening of the combined Medical School and hospitals in 1924-25, there began a period of rapid growth of new teaching programs, new research efforts and new patient services. At that time, there were nine full-time faculty members, but only in the basic sciences and psychiatry. Laboratory assistants were limited to one or two per department, and these were usually inexperienced persons. Teaching in the clinical years was by lecture, clinical clerkships, outpatient clinics, ward walks, and occasional grand rounds, the latter held irregularly. The teaching was conducted by volunteer clinical staff members for the most part. The basic sciences were taught by full-time people, although the small staff in each department was not sufficient to insure top-quality instruction. Gradually a few more full-time members were added in each department.

At the time the new hospital and school were planned, the University was fortunate to enlist the interest of Mrs. Ella Strong Denison in its library needs.[60] (As noted earlier, she provided funds for construction of the Henry S. Denison Medical Research Building on the Boulder campus in 1912.) In 1924 she made a substantial contribution toward furnishing the first library quarters on the second floor of the School of Medicine. The collection of books and periodicals then numbered 5,000 volumes. Mrs. Denison also set up a fund of $2,000 per year for the sole purpose of completing journal files and expensive research serials. This made it possible to complete many sets of foreign journals.

Research Funds Severely Limited

Limited funds, almost none, were available for research in those years. Sometimes a drug firm would make a grant of a few hundred dollars to carry out a study in pharmacology, or the Council on Pharmacy and Chemistry of the American Medical Association would grant limited funds for a modest attack on a research problem. But one long-term research project, destined to provide much valuable information, had begun in 1923. It has been called the first scientific search for answers to the question: What is a normal human being? And if a child starts out in life as a normal healthy person, when, why and how does he become otherwise?

The search for answers to such questions began with an idea conceived by the late W. Walter Wasson, MD, a 1910 graduate of the University of Colorado School of Medicine who was a Denver radiologist. Using short exposure techniques to protect the child, Dr. Wasson and his associate, John S. Bouslog, MD, a 1916 graduate of the school, made X-ray studies of children's lungs to learn when tubercular infections began. Mrs. Lilian Weisman Winter of New Orleans, formerly of Denver, became interested and set up a $500,000 foundation in memory of her daughter, Selmene Winter, with Dr. Wasson as Director. The project soon grew beyond Mrs. Winter's ability to support it alone, and in 1927 it was re-incorporated as the Child Research Council. Begun as a study of the lungs of infants and children, the project was soon extended to many other areas including: growth changes in physical size and proportion, in body skeleton, heart and lungs, in teeth, jaws and head, and respiratory functions. Soon the Council began to study many other functions of the body and their changes with age and growth – metabolism, hematological changes, plasma proteins and other blood constituents, muscle coordination, speed of reaction, rhythm sense, intelligence, personality characteristics, etc. By these and other studies conducted over a period of years, the Council obtained information of great value to physicians in providing reliable standards for the growing child. From 1930, the Council was directed for many years by

[59] Whitehead, op. cit.

[60] *University of Colorado School of Medicine Bulletin*, 1:27-28, 1950.

Dr. Alfred Washburn. The Council staff assisted in the teaching activities of several clinical and basic science departments, and new teaching programs were ably assisted by Dr. Washburn and his staff.[61]

The medical school had only limited funds for attendance at national meetings in the early years. Staff members often would attend by traveling on coach trains without Pullman accommodations for long distances at their own expense. Despite the lack of funds for travel and research each department began a program of scientific investigation, perhaps insignificant by 1971 standards, but destined to advance with the passage of time.

Following the appointment in 1933 of Dr. James J. Waring as Professor and Head of the Department of Medicine, another new era began. He was the first full-time professor in the Department of Medicine.[62] A 1913 graduate, Dr. Waring had started medical school at Johns Hopkins but had come to Colorado for reasons of health and finished here. He became an outstanding clinician and teacher and possessed a great fund of knowledge gained from extensive reading and experience. Under his direction, the department made rapid strides in teaching, research and community service. He established in the department a Division of Industrial Hygiene, a Preventive Medicine Clinic, the Rheumatic Fever Diagnostic Service, and other new programs. He brought distinguished visitors to the school from all parts of the world, helping to establish a cordial and cosmopolitan atmosphere at the Medical Center. Following his retirement, Dr. Waring's interest was centered in the Webb Institute (now the Webb-Waring Institute) for Medical Research which he helped to establish on the medical campus.[63] Under his guidance, an able staff was assembled and the institute became a center for research in respiratory diseases and bacterial genetics, in which fields it continues active to date.

The Depression years of the early 1930s brought problems and changes to the Medical Center. Some of the clinicians with full-time faculty appointments engaged in some outside practice, and this was criticized by many private physicians. There also was criticism by some private practitioners that patients were admitted to the University hospitals who could well pay for private care. A liaison committee composed of members of the Colorado Medical Society and representatives of the Medical School was appointed to consider and attempt to resolve these controversial issues.[64] At length an agreement was reached under which the full-time faculty clinicians agreed to forego outside practice and limit their involvement in private patient care to consultations only. This plan obtained into the 1950s, when a "Faculty Practice Fund" was established into which consultation fees and fees for care under the so-called "geographical practice" plan were placed. Under the plan, fees collected for all consultations and care within the institution for which a charge is appropriate are placed in the Faculty Practice Fund. The fund is then used by the Dean to supplement the salaries of faculty members throughout the School, basic scientists along with clinicians, regardless of whether or not an individual has engaged in practice contributing income to the fund. This plan, still operating in 1971, has appeared to resolve the old dispute amicably.

Depression Hits Hard at Medical Center

Inadequate appropriations from the State Legislature created a fiscal crisis in 1928-30. Dean Rees said in his biennial report for those years that the outstanding problem had been insufficient support for the University hospitals. At the request of the Regents, Governor William H. Adams appointed a committee to investigate the financial plight of the Medical Center. The committee found that the institution was being operated "economically and efficiently" and that further curtailment in State funding would endanger the service capabilities of the hospitals and the high standards which had been established over years of careful management. During the subsequent two years, it was not possible to enter into any new programs in view of the limited funds, although the patient load in the hospitals was increasing. The 1930-32 biennium was closed,

[61] McCammon, Robert W.: Personal communication to RWW; and *Denver Post*, Feb. 3, 1971, p. 53.

[62] Whitehead, op. cit.

[63] See also Myers, J. Arthur: "James Johnston Waring (1883-1962), Practitioner, Scientist, Scholar, Teacher, Lecturer, and Author," *Journal-Lancet*, 84:4-10, 1964.

[64] Jobe and Hills, op. cit., pp. 74-75.

however, without a deficit. Total student registration in the Medical School for 1930-31 was 213. This dropped to 198 in 1931-32, but the School conferred 53 MD degrees in June 1932.[65]

Denison Memorial Library Is Built

Recovery of the Medical Center from the 1932-34 Depression was slow, and by 1936 there still was a great need for faculty salary adjustments and staff increases. In September 1936 a long-sought coalition between the School and Denver General Hospital was negotiated to permit use of the clinical resources of the municipal hospital for training senior students. Control of teaching was to be in the hands of the School. "We do not desire and will not have any authority over the administrative policies of the hospital," Dean Rees announced, "but we must be free to administer the training of our students."

As Colorado and the nation struggled back from the Depression later in the 1930s, public and private funds made possible some additions to the physical facilities of the Medical Center, notably a library and a two-story east wing for Colorado General Hospital, the capacity of which eventually rose to 293 beds by various expedients, including enclosure of the original structure's sun porches. The east wing cost $177,398 in 1938, and a year later a third floor was constructed on this wing to provide better obstetrical service quarters. A wing also was added in 1938 to the Nurses' Residence Hall at a cost of $86,636.[66]

In 1935, Mrs. Denison again gave funds, this time in memory of her husband, for the construction of a much-needed library and auditorium. The building was completed in 1937 at a cost of $97,000.[67] The dedicatory address was delivered by Colorado's outstanding scientist, Dr. Florence Sabin. Known as the Charles Denison, MD, Memorial Library, it has served the school and hospitals with up-to-date books and periodicals as well as providing journals and books to Fitzsimons General Hospital, National Jewish Hospital, the Veterans Administration Hospitals, the Lovelace Clinic and other medical institutions in the region while these agencies were starting their own libraries. An addition to the library was completed in 1962, and plans are being developed in 1971 for a further expansion.

The University Medical Center began in 1934 to improve the diagnosis and treatment of cancer with the establishment of the Bonfils Tumor Clinic. Dr. Casper F. Hegner, who became Professor and Head of the Department of Surgery in 1936, recognized the need for more definitive care of cancer victims. He approached Miss Helen Bonfils, daughter of the co-founder of *The Denver Post,* for financial aid in establishing a cancer clinic at Colorado General Hospital. His request was granted, and the clinic was named the Frederick G. Bonfils Tumor Clinic. At the outset, the professional personnel served almost exclusively on a volunteer basis. The Bonfils grant was used to support record keeping and a radiation therapist. A weekly tumor conference was initiated at which attendance by medical students was voluntary. From small beginnings, the Bonfils Tumor Clinic continued in operation, and with the ensuing years it has expanded its operations to Denver General Hospital and throughout the region to advance the diagnosis and care of cancer patients.[68]

During the 1920s and '30s important medical discoveries had a great influence on teaching and medical practice. Several departments of the Medical School were engaged actively in research on the hormones of the hypophysis, ovaries, placenta, adrenals, pancreas, etc. Insulin had been discovered in 1921, and as is well known, this had a profound influence on the management of diabetes mellitus. The discovery of an active adrenal cortex extract in the 1930s greatly aided the treatment of Addison's disease, notably the crisis. Further studies on this extract in infections and related disorders, were conducted during these years by the Departments of Physiology, Pharmacology and Medicine, leading to suggestive results in the treatment of rheumatoid

[65] Davis, op. cit., pp. 352-353.

[66] University of Colorado Department of Medicine: Thirty-Year Building Plan, December 31, 1949, mimeographed, pp. 9-10.

[67] Idem. See also "The Charles Denison, MD, Memorial Library," *University of Colorado School of Medicine Bulletin,* 1:27, 1950.

[68] For further details see Morfit, H. Mason: "Historical Notes on Development of the Bonfils Tumor Clinic," *Department of Surgery Newsletter,* University of Colorado School of Medicine, 2:1-5, 1957.

arthritis. The results were later confirmed and extended by Kendall and Hench at the Mayo Clinic and resulted in the use of cortisone and related hormones in arthritis.[69]

Advances in Medicine Affect Education

The discovery of the sulfonamide drugs in the mid-1930s revolutionized the treatment of many infections for which previously there had been no specific therapy. The discovery of the antibiotics in the 1940s and 1950s greatly improved the management of many other infectious diseases previously lacking specific therapy. During the late 1920s and '30s, oxygen therapy was developed as a result of new knowledge derived from physiological studies on animals. Supervision of oxygen therapy at Colorado General Hospital was placed logically in the Division of Anesthesia, directed by Dr. William B. Draper, Associate Professor of Pharmacology (later Professor). It was largely owing to his teaching that oxygen therapy became thoroughly understood at the Medical Center, and the proper application of tents and anesthesia machines for resuscitation came into use. His insistence on care in the administration of anesthetics and the avoidance of anoxemia resulted in the saving of many lives over the course of years.[70]

Alumni of the School of Medicine held only informal reunions until 1938, when the present Medical Alumni Association was founded, though alumni of the University as a whole had been organized since 1888. Soon after his graduation Dr. Edward R. Mugrage established a file showing the year of graduation, internship, place and type of practice, etc., of each graduate of the CU Medical School and of the three other Denver schools which had merged with CU in 1911. Soon he expanded the file to include family events, military service, appointments and promotions, honors and obituaries. For 25 years "Uncle Ed" was a "one-man alumni association."[71]

In June 1938 the University of Colorado Medical Alumni Association was organized at a luncheon given personally by Dean Rees, both he and CU President Robert L. Stearns attending and encouraging it. Dr. Mugrage was elected as the first President with Dr. John C. Mendenhall as Secretary-Treasurer, both to serve two years. At the 1941 meeting Dr. Osgoode S. Philpott was elected president for the ensuing term, but before the change in officers was effected, word reached them that "the powers that be" in Boulder would permit only one alumni association for the whole University and the Medical Alumni Association was ordered to disband and turn its meager treasury over to the parent body. Some never forgave those who brought this about, though World War II would no doubt have suspended the association's activities for a few years anyway. On the return of President Stearns from military leave, reorganization became possible, and Dr. Philpott, as the medical alumni's last president, called a meeting which accomplished this at the 1948 commencement. The Association now holds an annual banquet at Commencement time, has an office and an Executive Secretary at the Medical Center, and in 1958 established a $20,000 memorial fund in honor of Dr. Mugrage, used in part to furnish a "Mugrage Alumni Lounge" and the "Mugrage Student Lounges" which were dedicated in May, 1969.[72]

Certain political events of the 1920s and '30s of great significance to medical education and practice should be mentioned. In 1922 a vicious "Anti-Vivisection Law" was proposed, which if passed would have interfered severely with teaching and research in the State's medical and veterinary schools. An intensive campaign against this measure by the medical, dental and veterinary professions and their schools, and by their friends, resulted in overwhelming defeat of the proposed measure at the polls. In 1937 the State Legislature enacted a Basic Science Law which required those seeking license to practice the healing arts to have at least a minimal knowledge of biology, chemistry, anatomy, physiology and pathology.[73] This new law had a far-reaching effect in protecting the people of the State from quackery and cultism. In 1938 the notorious "Amendment No. 2" to the State Constitution was proposed and a campaign for it was heavily financed by chiropractors. If adopted it would have opened all hospitals, clinics and other health

[69] Whitehead, *op. cit.*

[70] Idem.

[71] *Colorado Alumnus*, 41:(No. 5) 10-12, 1951. See also *University of Colorado School of Medicine Bulletin*, 1:26, 1960.

[72] Rettberg, William A. H.: "Edward Rosseter Mugrage, M. D., Physician, Scientist, and Friend," University of Colorado School of Medicine Quarterly, 11:(No. 2) 11-12, 1969.

[73] Whitehead, *op. cit.*

agencies operated by the State not only to chiropractors, but to any other group forming a healing cult. The combined efforts of the medical, dental, nursing and pharmaceutical professions and their friends were needed to arouse the public. The proposal was soundly defeated that November.[74]

The School of Nursing was reorganized in 1942 as a professional school within the College of Arts and Sciences. The School became an autonomous professional school on July 1, 1949, with its own dean, administrative organization and faculty. Since that time, the School has progressed rapidly in service and prestige.[75]

A much-needed facility for the entire medical community was made available in February 1943, with establishment of the Belle Bonfils Memorial Blood Bank at the Medical Center under the auspices of the Denver Medical Society. A committee composed of Drs. Osgoode S. Philpott, Ward Darley, and James J. Waring did the initial planning. This is a community-type bank which furnishes blood and blood products to most of the Denver hospitals and others in the state and region. Funds for the bank were provided by Miss Helen Bonfils as a memorial to her mother. The bank moved from rooms in the Department of Public Health and Laboratory Diagnosis, with Dr. E. R. Mugrage as Director, into its own building immediately west of Colorado General Hospital in 1954. The bank has increased its service and has added many research and teaching contributions since its inception. It is now directed by William A. H. Rettberg, MD (Class of 1935).[76]

Productive research was conducted at the School of Medicine and its hospitals during the years 1942-45.[77] Drs. Mugrage and Florio with Mrs. Stewart of the Department of Public Health and Laboratory Diagnosis conclusively demonstrated during this time that Colorado tick fever is a virus disease. The Department of Medicine during these years made studies on rheumatic fever, brucellosis, altitude, and polycythemia. The Child Research Council expanded its studies of children from birth through the period of growth and development.

World War II Has Profound Effect

The School and hospitals were profoundly affected by the entry of the United States into World War II. The 29th and 31st General Hospitals, both destined for duty in the South Pacific, included on their rosters many Medical Center staff members, resulting in a substantial reduction in the size of the faculty.[78] In spite of this, the School went on a no-vacations accelerated program in July 1942, graduating a class every nine months. In July 1943 the Navy V-12 and Army A.S.T.P. programs were instituted. Ninety-eight men were trained under the V-12 program, and 199 under the Army plan. Three hundred and twenty students were graduated during this time, amounting to two extra classes.

Immediately following the war, deceleration began and by September 1946 the curriculum was back on a prewar schedule. During the preceding six months of 1946 there was no formal undergraduate instruction, but short refresher courses were offered, a comprehensive resident training program was started, and an expanded program of research was begun. The full-time faculty was increased at this time from 21 preclinical and five clinical members (prewar) to 34 full-time basic science teachers and 19 full-time clinical members.[79] Student enrollment climbed from 219 in 1946 to 242 by 1949.

When Dean Rees died in May 1945 following a heart attack, Dr. Ward Darley was chosen as his successor. Dr. Darley was a 1929 graduate of the school, had been on the full-time medical faculty for several years, and was Associate Professor of Medicine at the time. In 1947 he became

---

[74] Sethman, *op. cit.*

[75] *University of Colorado Bulletin, School of Nursing,* 70 (No. 47), 1971-72.

[76] Rettberg, William A. H.: "Life Blood of the Rockies," *University of Colorado School of Medicine Quarterly,* 5:(No. 1), 1963.

[77] For details see Whitehead, R. W.: "Medical School Serves Region with Varied and Extensive Program of Research," *Colorado Alumnus,* 36:(No. 7) 1-3, 1946.

[78] *Colorado Alumnus,* 33:(No. 7) 5, 1943. See also *University of Colorado School of Medicine Bulletin,* 1:38-41, 1950.

[79] Jobe and Hills, *op. cit.*

also Director of the Medical Center, and in 1949 he was named Vice President of the University for medical affairs, in charge of the medical and nursing schools and the two hospitals.[80]

Colorado General Hospital Services Increase

By 1949, Colorado General Hospital services had increased to 5,900 admissions per year, 85,200 patient-days and more than 104,300 outpatient visits.[81] Growth in patient services was paralleling the growth in medical student enrollment.

In the administrative reorganizations of 1947-49[82] which saw Dean Darley advanced to Vice President, Dr. Robert C. Lewis, Professor of Biochemistry, was appointed acting Dean for six months and then Dean of the School in 1949. Dr. Darley continued as Director of the Medical Center and Vice President until he was appointed President of the University at Boulder on July 1, 1953.[83] He served as President until October 30, 1956, resigning to become Executive Director of the Association of American Medical Colleges in Evanston, Illinois.[84] During 1953-54 he had been President of the association. He resigned as Executive Director in 1965 to come "home" to the University of Colorado Medical Center – the name had been formalized by the Regents in the 1947 reorganization – as Visiting Professor of Medicine and Preventive Medicine.

Dean Lewis, a senior member of the medical faculty, had earned his PhD from Yale in 1912. He joined the CU medical faculty in 1916, had been Professor of Biochemistry since 1918, and had served many years as Chairman of the Admissions Committee. He was greatly loved by both students and faculty and took an active part in development of the school and hospitals until his retirement in 1956.

Among the more important advances during the postwar years were the following.

(1) Creation of the Office of Graduate and Postgraduate Medical Education, first headed by Dr. Frode Jensen, in 1947, aided by a grant from the Kellogg Foundation. With the cooperation of the practicing profession, a program of continuing postgraduate medical education was started which carried educational activities into the physicians' own communities as well as bringing doctors to the Medical Center for short intensive refresher courses.[85]

(2) The clinical division of the Graduate School was formed. This permitted development of specialty training and special training for general practice. For several years, all residents in training registered in the Graduate School with opportunity to work for a graduate degree.

(3) As part of the residency training program, a six-month course in "Applied Medical Science" was organized. This made it possible for other hospitals in the area to offer improved internships and residencies, and organization of a general practice residency provided training for house officers for many community hospitals.

(4) In 1947 an agreement between the City and County of Denver and the Regents of the University led to a closer affiliation between the school and Denver General Hospital for teaching, patient care and research. This improved the teaching at both graduate and undergraduate levels. Soon after the agreement was consummated, the nursing school of the city hospital was amalgamated with the CU School of Nursing.

(5) Soon after World War II a Dean's Committee was formed at the Medical Center to assist in the staffing and direction of residency training programs of the Veterans Administration Hospitals at Fort Logan and Grand Junction, Colorado, and Albuquerque, New Mexico. Plans then were completed to build a 500-bed Veterans Administration Hospital on land adjoining the medical campus in Denver to replace the old facilities at Fort Logan. This new structure was occupied in 1953. A well-equipped research building was soon added. This hospital provides

---

[80] *Colorado Alumnus*, 38:(No. 10) 8, 1948.

[81] *University of Colorado School of Medicine Bulletin*, 1:15, 1950.

[82] Darley, Ward: Medical Education in Colorado – July 1947-June 1949, mimeographed, p. 1.

[83] Davis, *op. cit.*, p. 593. See also *Colorado Alumnus*, 44:(No. 1) 6-7, 1953.

[84] *Colorado Alumnus*, 47:(No. 3) [i], 1957.

[85] *Extramural Postgraduate Medical Education in Colorado*, Office of Graduate and Postgraduate Medical Education, University of Colorado Medical Center, 1949.

excellent care for veterans, has a large full-time and volunteer staff of teachers, and an excellent residency training program. It has provided varied clinical material for the instruction of medical students, and excellent research papers have come from its staff. The VA Hospitals at Albuquerque and Grand Junction have also done a commendable job of patient care, residency training and research. The Albuquerque hospital recently has come under the supervision of the Dean's Committee of the University of New Mexico School of Medicine, established in 1960.

(6) The faculty and Deans began a critical review of the undergraduate curriculum soon after the School was back to normal operations after the war. Course work was correlated, duplication of subject matter was minimized, and departmental courses were shortened so that new subject matter could be added. An effort was made to establish a curriculum which would orient the medical student to the healthy as well as to the sick person – to health and its attributes as well as to disease and its diagnosis and treatment. The Child Research Council with its longitudinal approach to human growth and development figured prominently in the organization of the new curriculum. The interdepartmental course arranged by the Council entitled "Medicine as Human Biology," given to entering freshmen, served admirably to orient the student to the healthy individual as well as to the sick patient.

(7) As part of the updating of the curriculum in 1947, a new idea evolved in the form of the General Medical Clinic sponsored jointly by the School of Medicine and the Denver Department of Health and Hospitals.[86] This clinic was provided with offices and equipment similar to those in use in the practice of an up-to-date general family physician. The clinic was funded at the outset by a grant of $265,000 from the Commonwealth Fund of New York. The objectives were: "1) More intelligent attention to the positive aspects of healthful living, 2) Earlier diagnosis of illness and more adequate attention to minor complaints, 3) Better management of both acute and chronic illness, 4) Education of physicians to meet the problems of general family practice."

The clinic was opened in August 1951 at Denver General Hospital, and in 1954 it became an important factor in the training of medical students. This educational experiment broadened the traditional clinical experience with sick people to include medical training based on the study of the individual, both well and sick, in relation to the social, environmental and psychological factors which help determine whether disease occurs and the course it may take.

Two new departments also were added to the Medical School soon after the close of the war.[87] One of these, a basic science department, Biophysics, was placed under the direction of Dr. Theodore T. Puck. It was not long before the researches of Dr. Puck and his associates in the field of cellular biology and the new genetics attracted national attention. The department has contributed substantially to knowledge of these and related subjects. Dr. Puck's studies on isolated cancer cells, and the development of pure cell lines have attracted world-wide attention. He is now Director of the Eleanor Roosevelt Institute for Cancer Research at the Medical Center.

The Department of Physical Medicine and Rehabilitation was created in 1947 as one of the first such departments to be established in a medical school in the United States.[88] The department makes full use of the physical modalities – heat, electricity, massage, ultrasound, etc. – as well as physical exercise and muscle re-education. The emphasis on rehabilitation of the paralyzed or otherwise incapacitated person as carried out in this department is one of the more important phases of teaching. Ancillary to this department's work, a training school for physical therapists has provided well-trained assistants to physicians and hospitals offering this type of therapy.

Other training programs in fields ancillary to medicine were enlarged and new ones added in the postwar decade. The courses in medical and X-ray technology were expanded, and internships in hospital administration and dietetics were started. Clinical training for students in occupational therapy at Colorado State University and in psychiatric and medical social work at the University of Denver also is provided.

---

[86] Hammond, K. R., Kern, Fred Jr., Crow, W. J., Githens, J. H., *et al: Teaching Comprehensive Medical Care,* Harvard University Press, Cambridge, 1959. See also Dunham, Robert: "GMC – $330,000 Later," *Colorado Alumnus,* 42:(No. 1) 3-4, 1957.

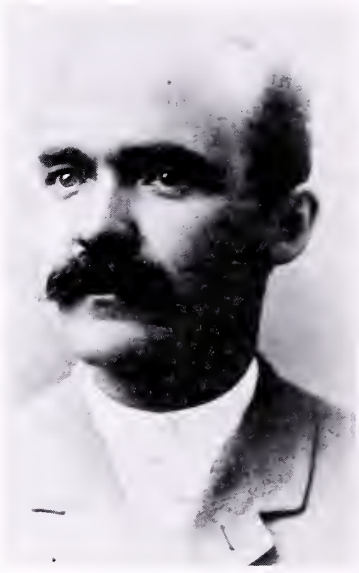
[87] Whitehead, *op. cit.*

[88] *Idem.*

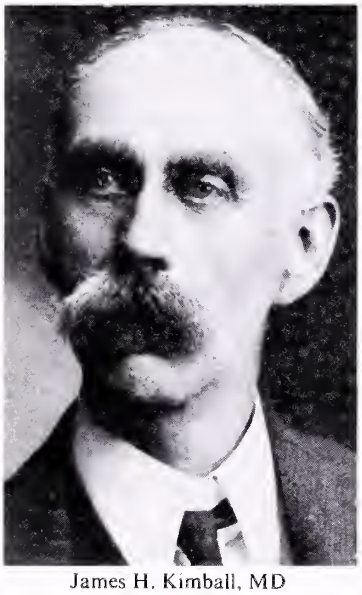
University of
Medical

Joseph Addison Sewall, MD, LLD.
President, 1877-1887, Dean, 1883-1887

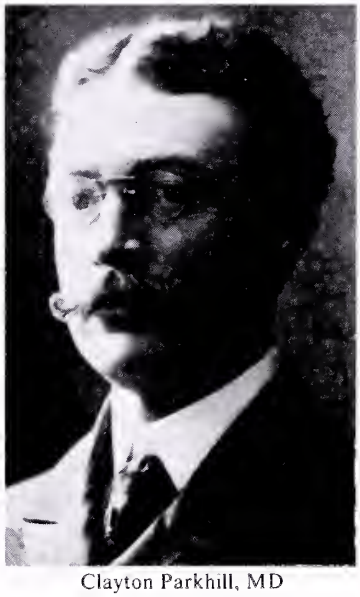
Jeremiah T. Eskridge, MD
Dean, 1892-1896



Luman M. Giffin, MD
Dean, 1897-1907



James H. Kimball, MD
Secretary and Dean, 1884-1892



Clayton Parkhill, MD
Dean, 1896-1897

William P. Harlow, MD
Dean, 1907-1915

Photographs on these pages courtesy of the *Western Historical Collection — Norlin Library, University of Colorado — Denver Medical Society Library — Colorado Medical Society Historical Archives — Medical Photography Department, University of Colorado Medical Center.*

Colorado School Deans

Charles N. Meader, MD
Dean, 1916-1925

Maurice H. Rees, MD, PhD
Dean, 1925-1945

Ward Darley, MD
Dean, 1946-1949

Robert C. Lewis, PhD
Dean, 1949-1956

Column 3 Top

Robert J. Glaser, MD
Dean, 1956-1963

Column 3 Center

John J. Conger, PhD
Dean, 1963-1968

Column 3 Bottom

David W. Talmage, MD
Dean, 1968-1971

The University of Colorado Medical Center has cooperated in many extra-campus activities which involve non-University agencies. The following selective list is representative of activities within the state which were inaugurated in the years immediately after the Second World War:

(1) Cooperative residency training programs – Denver: Denver General, National Jewish, Mercy, Presbyterian, St. Anthony's, St. Joseph, St. Luke's, Children's and General Rose Memorial Hospitals; Fort Logan: Veterans Administration Hospital, later Denver Veterans Administration Hospital; Aurora: Fitzsimons General Hospital; Colorado Springs: Memorial, Penrose and St. Francis Hospitals; Pueblo: Colorado State and Corwin Hospitals; Fort Collins: Larimer County Hospital.

(2) Monthly teaching teams to: Fort Collins, Grand Junction, La Junta, Durango, Longmont.

(3) Student health services: Boulder campus of the University, University of Denver, Colorado State University, Colorado State College (University of Northern Colorado).

(4) Psychiatric counseling for employee personnel: Colorado Health Department, Denver Bureau of Public Welfare, Denver Police Department, Denver Health Department, Tri-County Health Department, Denver Family Service, Florence Crittenton Home, Denver Public Schools.

(5) Mental hygiene clinics: Weld, Larimer, Mesa, Otero and Pueblo Counties.

(6) Epilepsy clinic: Colorado Society for Crippled Children and Adults.

(7) Rheumatic Fever Diagnostic Service: Colorado Heart Association.

(8) Colorado Rheumatic Fever Program: Colorado Medical Society, Colorado Health Department, Denver Health Department, Colorado Heart Association.

(9) Belle Bonfils Memorial Blood Bank.

(10) Post-doctoral training program in nuclear physics: University of Colorado, Boulder, and University of Denver.

(11) Sanitarian training center: United States Public Health Service, Colorado Health Department, Denver Health Department.

(12) Colorado Health Department: Consultants in pediatrics, obstetrics, rheumatic fever and mental hygiene.

In 1949 the Western Governors' Conference laid the groundwork for establishment of the Western Interstate Commission for Higher Education (WICHE), and by November 1951 five states had ratified the pact which created an interstate agency to help solve problems of higher education in the western states. The student exchange program was the first project undertaken by the new organization, which has its headquarters in Boulder and today involves thirteen states.

Under the WICHE program, the Colorado School of Medicine agrees to provide places in each freshman class for students of other Western states which do not have medical schools. Regular tuition is paid by the student, and his state pays the difference between his fees and the estimated cost of his education.

The changes in medical education begun in the immediate postwar period were followed by an era of accelerated activity in teaching, research, patient care and service in the 1950s and '60s. The programs initiated in these areas under Dean Darley with the support of the faculty and Regents were carried forward under Dean Lewis. The size of the undergraduate classes was enlarged to 85 members, and research in all departments was accelerated, creating need for more space. Training of more interns and residents also demanded additional faculty. The postgraduate education program under Dr. Jensen was accelerated under Dr. Charley J. Smyth with the addition of many additional short courses for practicing physicians. Dr. Smyth served as director of postgraduate education from 1950 to 1954, when the program was taken over by Dr. C. Wesley Eisele as Associate Dean for Postgraduate Medical Education. A general practice review course was held each year and always was well attended. Special courses in surgery and its specialties, obstetrics, pediatrics, internal medicine and its specialties, physical medicine, etc., were soon introduced and offered yearly.

Medical research, given a great stimulus by the events of World War II and its aftermath and by the support given by the Federal government, continued a healthy growth at the Medical School in the 1950s and '60s. New techniques and added manpower in the various departments led to rapid developments in fundamental knowledge, which was soon followed by advanced teaching and improved practice. Advances in research were so numerous during these two decades that only a few may be mentioned by way of illustration.

One of the interesting developments of the early 1950s was in the field of renal pathology and physiology, leading to use of the "artificial kidney," based on facts learned about hemodialysis and use of artificial membranes. The work at the Medical School was begun in 1953 by Dr. Joseph H. Holmes in the Department of Medicine. Hemodialysis has become a practical means of treating certain cases of poisoning and a useful technique in prolonging the lives of many patients with terminal uremia. Further research in succeeding years led to successful renal transplantation, another area pioneered by scientists, surgeons and physicians at Colorado General Hospital.

The Department of Surgery began an active clinical research program in the 1950s under the direction of Dr. Henry Swan II, then Professor of Surgery. Cardiac surgery was pioneered at the School with the Division of Anesthesiology collaborating in the cardiac research. The induction of the hypothermic state and its use in cardiac surgery was developed by this group. Basic studies on animals established fundamental principles before application to patients. Other divisions active in research included the Divisions of Orthopedics, Urology, Neurosurgery, Ophthalmology and Otolaryngology. The Department of Medicine, headed since 1952 by Dr. Gordon Meiklejohn, and its several divisions carried on an active research program. Studies on the antibiotics have been numerous and productive of results of practical importance. The Division of Renal Disease, Division of Endocrinology, and the Divisions of Neurology and of Dermatology have all conducted expanding research programs. The Departments of Psychiatry, Pediatrics and Obstetrics and Gynecology also were involved in major research efforts during this period.

Research was also carried out in the basic science departments during the 1950s. The newer techniques provided by the electron microscope and radioactive isotopes, and the newer biochemical findings on enzymes, among other advances, brought to fruition new observations on many cellular functions, leading to the emergence of the field of cellular biology and its application to cancer research and other basic problems. This area of research attracted the interest of many scientists at the School of Medicine and elsewhere. It soon became necessary to provide new quarters and equipment to further these cancer and related studies. A new building to provide the expanded facilities was built in 1951. The new structure was financed by the United States Public Health Service, and by a State building mill levy earmarked for the Medical Center. The building was appropriately named the "Florence R. Sabin Building for Research in Cellular Biology," honoring this distinguished Colorado anatomist, investigator, teacher, humanitarian and public health leader. Dr. Sabin herself attended the dedication in December 1951 and witnessed the unveiling of a portrait of herself which hangs in the auditorium of the building, also named for her. The four-story Sabin building was added as a wing to Colorado General Hospital and the adjacent Medical School wing.[89]

In 1952, four temporary buildings, a garage and a service building were constructed; in 1953, a third floor was added to the Verner Z. Reed Outpatient Building to provide quarters for new research in the fields of cardiac, vascular and pulmonary diseases. In the same year, the first floor of the Webb-Waring Institute Building was completed. The $278,000 Belle Bonfils Blood Bank Building was constructed and occupied in April 1954. The following year, a 14,200-square-foot outpatient clinic wing was added to Colorado Psychopathic Hospital at a cost of $300,000.

Dr. Lewis, who had been the third full-time member of the medical faculty when he joined it in Boulder in January of 1916, retired as Dean in June 1956. He originally came to the faculty as Assistant Professor of Physiology and Biochemistry and, when the Medical School moved in 1924 to the new quarters in Denver, he became chairman of the Department of Biochemistry, a chair he held until he was appointed Dean in 1949.[90] Some months after his retirement, Dr. Robert J. Glaser, then Associate Dean of the Washington University School of Medicine in St. Louis, was appointed Dean of the Colorado school, effective February 1, 1957. Dean Glaser had received his MD *magna cum laude* from Harvard in 1943. Like Dean Meader before him, Dean Glaser would become one of the school's major builders, greatly changing the face and the capabilities of the medical campus.

---

[89] "Medical Center Dedicates New Cancer Building," *Colorado Alumnus*, 42:(No. 1) 4-8, 1952.

[90] Davis, *op. cit.*, pp. 610-611.

CU President Quigg Newton, a former mayor of Denver, who had become President in 1956 as Dr. Darley's successor, took a personal interest in the affairs of the growing Medical Center. With the appointment of Dr. Glaser, the medical campus had two administrators, a Dean and a Director. Dr. Francis H. Manlove had followed Dr. Darley in the post of Director of the Medical Center, a position created in the administrative reorganization which had seen Dr. Darley named Vice President.[91] Dr. Manlove resigned in August 1957, and President Newton appointed Dr. Glaser as Vice President for Medical Affairs, as well as Dean of the Medical School, in June 1959.[92]

Medical Center Master Plan Developed

It had become obvious that the 1924 Medical Center, even though several times added to, was not capable physically of discharging the responsibilities imposed upon it in the 1950s.[93] Planning for a major expansion had been initiated in 1955, but Dr. Glaser and President Newton took a fresh look in 1956-57 with the Chicago firm of Schmidt, Garden and Erikson as consultants, and sights were raised.[94] Off the drawing boards came a 25-year "master plan" which the Board of Regents approved in the spring of 1958 as a blueprint for overcoming current deficits and meeting the demands ahead.[95] The plan provided for a new Colorado General Hospital, greatly expanded teaching and research space for the medical and graduate schools, adequate quarters for the School of Nursing, a future School of Dentistry (which had been approved by the Regents in 1951), a Clinical Research Wing, flexibility to meet future needs, expansion of Denison Library, new animal quarters, and other features. The cost of this was estimated in December 1960 at $16,805,000.[96] As the construction and remodeling work progressed during the sharp inflation of the 1960s, the total expenditure for the hospital and research wing eventually reached $20,336,000, of which $17,116,000 was provided by the State of Colorado, $1,682,000 by the Federal government, and $1,538,000 came from private gifts. The huge project, more than doubling the size of the Medical Center, won Legislative approval in 1959, and the first step was a $473,000 addition to Denison Library.

By 1949, the Denison Library's collection had reached 40,000 volumes. The new L-shaped addition constructed in 1961-62 under the Newton-Glaser master plan provided 20,000 square feet of new space and was designed to accommodate a collection of 100,000 volumes. So great was the "explosion" of biomedical knowledge in the 1960s, however, that the 100,000th volume was added to the Library in the fall of 1970. Mrs. Lillian Dumke, who had served as Librarian for 31 years, retired in 1963, a year after the new facility was completed, and Dr. Frank B. Rogers, former Librarian of the National Library of Medicine, was recruited to fill the position. By 1970, with space already filled and demands mounting, Dr. Rogers had completed plans for a second addition to the library building.

Included in the 1961-62 addition was space on the top floor for the Humphreys Postgraduate Center, made possible by a gift of $100,000 in memory of Ruth Boettcher Humphreys by her husband, A. E. Humphreys, her daughters, Mrs. D. R. C. Brown and Mrs. Vic E. Breeden, and the trustees of the Boettcher Foundation. The Center provided facilities for the postgraduate education program for practicing physicians which had grown under Dr. Eisele's direction to an annual enrollment of 3,000 by the early '60s and to nearly 6,000 less than a decade later. A Children's Day Care Center also was constructed in 1962 adjacent to the clinic wing of Colorado Psychiatric Hospital to provide for psycho-educational services, training and research.

---

[91] *Ibid.*, pp. 607-10, 643.

[92] *Ibid.*, pp. 644, 702-703.

[93] Hansen, Robert H.: "CU Medical Center Makes Amazing Growth in Decade," *The Denver Post*, December 16, 1954. This was the first of a series of articles reporting in detail the Medical Center's growth and needs for the future.

[94] See Glaser, Robert J.: "$17.5 Million Medical Building Program," *Colorado Alumnus*, 49:(No. 3) 2-4, 1959; and Glaser, Robert J., "Prognosis: Rehabilitation and Recovery," *University of Colorado School of Medicine Quarterly*, 3:(No. 3), 8-11, 1961.

[95] See *The University of Colorado Medical Center: Its History — Its Mission*, January, 1959, mimeographed.

[96] The University of Colorado Medical Center, *Expansion Program*, December, 1960, mimeographed, p. [8].

Meantime, the architects had completed their work on the new hospital and clinical research wing, and on November 2, 1961, Abraham A. Ribicoff, Secretary of Health, Education and Welfare, broke ground north of East Ninth Avenue for the $20.3-million expansion project.

A grant of $750,000 from the Eleanor Roosevelt Foundation created the Eleanor Roosevelt Institute for Cancer Research, which would occupy the top (seventh) floor of the new Clinical Research Wing bridging Ninth Avenue. In addition to the capital gift, the Foundation also provided $300,000 in annual support for the Institute. Announcement of these plans had come in mid-March 1961 at Washington, D.C., following a conference attended by James Roosevelt, President Newton, Dean Glaser and Governor McNichols. The Institute research program, to be directed by Dr. Theodore T. Puck, was outlined by Dean Glaser. Studies would be made of normal and abnormal cell growth, the transfer of genetic information fron one cell generation to the next, and the role of genetic factors in malignancy. James Roosevelt commented:

> The Eleanor Roosevelt Foundation is pleased and proud to establish this association with the University of Colorado.
>
> The impressive scientific developments which have stemmed from the University in the past decade and which have won national and international recognition have convinced the Foundation and its directors of the excellence of the over-all program.
>
> We believe the new Institute will complement the imaginative and effective research effort going forward at the Medical Center and will be the source of significant contributions to our understanding and ultimate control of cancer.[97]

Town-Gown Controversy Divides Profession

Concurrently, however, a public-professional controversy was fulminating which ranged a group of Denver physicians in opposition to the medical school. The seeds of the dispute had been planted unknowingly a decade earlier (in 1947) when the administration of Mayor Quigg Newton negotiated a new affiliation contract between Denver General Hospital and the medical school. The objectives were improvement in the care of patients at the municipal hospital and to provide additional clinical experience and research for the school's students, interns, residents and faculty. Under the agreement, the full-time professional staff of Denver General was to be limited to physicians holding appointment as members of the medical faculty. Heads of departments at the medical school were nominal chiefs of the respective services at Denver General as they were at Colorado General.

Denver General had long been staffed by volunteer, private physicians and surgeons. This tradition of charitable voluntarism came into conflict with the methods and standards of academic medicine, and the rift between certain elements of the Denver medical community and the school widened as time passed. Details of this unfortunate episode can be found elsewhere and need not be pursued here.[98] It was not a happy time for medicine in Denver, and public respect for the profession suffered. Sight was lost of the common objective of professional progress and of improving services to the citizens of Denver. In 1957, a new agreement was negotiated between the Denver Board of Health and Hospitals and the Board of Regents providing for full-time chiefs of service at the city hospital. This agreement broke down, however, and the relationship was terminated July 1, 1961. There were no winners in the miserable affair. In the next few years, emotions cooled and calmer heads prevailed. By August 1966 a new agreement had been hammered out. Denver General again became a "teaching" hospital with a close, if circumscribed, affiliation with the School of Medicine. By then, Denver General had built a substantial full-time professional staff of its own, and many of the hospital doctors were members of the medical faculty. Students and housestaff physicians returned to the municipal hospital, and once again relationships prospered and the quality of health services to Denver citizens benefited.

On December 5, 1962, President Newton announced he would leave the University in July 1963 to become President of the Commonwealth Fund of New York City. His resignation was followed by that of Dr. Glaser, Vice President for Medical Affairs and Dean of the School of Medicine. Chosen as President Newton's successor was Dr. Joseph R. Smiley, President of

---

[97] *Colorado Alumnus*, 51:(No. 7) 1, 1961.

[98] Davis, *op. cit.*, pp. 706-709.

the University of Texas. When he took office in July 1963, President Smiley went to the faculty of the University's own School of Medicine to find a Vice President for Medical Affairs and Dean. His choice was John J. Conger, PhD, Professor of Clinical Psychology in the Department of Psychiatry, who had been Associate Dean for Student Affairs since 1961. Dr. Conger became acting dean with the departure of Dr. Glaser, and his formal appointment was approved by the Board of Regents on September 20, 1963, as the second non-physician (Dr. Lewis had been the first) to head the medical school. A figure of national prominence in psychology, Dr. Conger was co-author of the leading textbook in his specialty and had been a member of the medical faculty and head of its Division of Clinical Psychology since 1953.

As he took office, Dr. Conger was deep in the bricks and mortar and the inevitable modifications and delays accompanying a long-term building project of such magnitude, with the cost overruns and underfunding of an inflationary era, and the sharp growth taking place almost on a week-to-week basis. The new Vice President also inherited a serious "town-gown" division and the bits and pieces and wounded feelings of the Denver General Hospital affair. He reestablished cordial relationships with the private physicians of city and state and in the process was elected to honorary membership in the Denver Medical Society and later given the highest service award of the Colorado Medical Society. The volunteer faculty of the Medical School, drawn from the ranks of the practicing profession, sharply increased. As has been noted, a close, mutually acceptable working relationship was reestablished with Denver General Hospital in 1966.

The new eight-story, 450-bed Colorado General Hospital and the Clinical Research Wing bridging Ninth Avenue to link the hospital with the older complex of buildings were completed and dedicated April 24, 1965. Work already had begun on the extensive remodeling project which would convert the old 1924 Colorado General and its medical school wing into modern, efficient quarters for the Schools of Medicine and Nursing and the growing program in graduate biomedical education. When Dr. Conger assumed responsibility, the best estimates were that this final phase of the master plan would cost on the order of $7.3 million. It quickly became apparent that the cost would be at least $9 million, and in spite of cutbacks and economies the final price (completion in the spring of 1971) was $11.3 million. It fell to Vice President Conger to put together the package of State, Federal and private resources which would cover this escalation of costs. Along the way, an eighth floor addition was constructed on the new hospital to accommodate a surgical organ transplant unit, a field of surgery unknown at the time ground was broken for the building, and the five-story John F. Kennedy Child Development Center, one of five such facilities in the nation, was completed in 1967-68 at a cost of close to $1 million. Steps also were initiated to begin acquisition of land west of Colorado Boulevard to meet the needs of the new master plan which was drafted.[99]

School Gains in National Stature

The national stature of the School of Medicine, which had begun to take shape during Dr. Darley's era and had advanced under Dr. Glaser, became firmly established in the late '60s. During Dr. Conger's regime eight new department chairmen, all distinguished leaders in their disciplines, were appointed, and more than a dozen division heads were selected. The faculty in the basic sciences was substantially strengthened. As the medical sciences advanced in all areas, the faculty undertook two major revisions of the curriculum and then adopted a policy of continual critical self-examination and curricular review. The State Legislature gave its formal approval in 1967 to the proposed School of Dentistry which the Board of Regents had authorized in 1951, and Leslie R. Burrows, DDS, PhD, came to Denver as its first Dean. Construction is expected to begin in 1971 on facilities for the dental school, and its first class is scheduled for admittance in 1972. Under Dean Kathryn M. Smith, the School of Nursing consolidated itself on the medical campus – it formerly had been divided between the Boulder and medical campuses – and adopted a five-year curriculum (two years of liberal arts pre-nursing studies) and a new emphasis on graduate work. The Medical Center's services to the practicing medical and

[99] See Conger, John J.: "The University of Colorado School of Medicine," *International Medical Digest*, 82:576, 1966.

The University of Colorado Medical Center today. The view is toward the west. New Colorado General Hospital at right. Clinical Research Wing spanning East Ninth Avenue to link Hospital with Denison Library and the Schools of Medicine and Nursing, left. (Medical Photography Department, University of Colorado Medical Center)

nursing professions through postgraduate education programs became a major factor and a year-round activity. In the nursing school the continuing education program was providing courses, workshops and consultations for about 4,000 nurses each year.

Medical Center Undergoes Striking Growth

The dimensions of Medical Center growth at this time are striking. The medical school had been built in 1924 to accommodate entering classes of 50 students each. A class of 80 was admitted in 1952, and the class size went to 85 in 1954. Completion of the building program permitted acceptance of classes of 105 in 1968, 115 in 1969 and 125 in 1971. Overall, the medical school had an enrollment of 441 in the fall of 1970, compared with 323 in 1963. The graduate program for candidates for the MS and PhD degrees in the biomedical sciences surged from 49 students in 1963 to 172 in 1970. There were also substantial educational programs in such allied health professions as physical therapy, medical technology, occupational therapy and radiologic technology, all of this contributing to a Medical Center student-trainee population of more than 1,500 as the 1970-71 academic year began. The full-time faculty had numbered 146 in 1962-63 and grew to 474 in 1970-71, and the school's budget increased from $2.7 million to $4.8 million in the same span. The entire Medical Center operating budget went from $10.5 million in 1962-63 to $49.5 million in 1970-71. To this, research activities contributed $2.6 million in 1962-63 and $8.1 million in 1970-71.

The consuming demands involved in serving as chief executive officer of a $50-million operation left Dr. Conger with increasingly insufficient time to devote to the essential academic

administrative and planning duties of the medical Deanship. In 1968, he asked that the two positions be divided, and the Regents approved. The division met with mixed reactions among the medical faculty, although such an administrative restructuring was becoming, then and since, a standard pattern at major university medical centers. Dr. Conger remained as Vice President for Medical Affairs with overall responsibility for the three professional schools and two hospitals, and Dr. David W. Talmage, who had been Chairman of the Department of Microbiology from 1963 to 1966, and then Associate Dean for Academic Affairs, was appointed Dean of the Medical School on February 15, 1969. Late in 1970, he asked to be relieved of the Deanship, effective in the spring of 1971. At Dr. Conger's request, Dr. Talmage had taken over supervision of the final phase of the building program. The job was nearly complete, and he wished to return to a full-time academic career in teaching, clinical practice and research. Dr. Conger had submitted his resignation as Vice President, effective July 1, 1970, with similar motives and became a Fellow of the Center for Advanced Study in the Behavioral Sciences at Stanford, California, for the 1970-71 academic year.

The story of medical education in Colorado is brought down to date with a search for the fourteenth dean of the School of Medicine and the appointment in May 1970 of Dr. Robert A. Aldrich of the University of Washington School of Medicine to the re-titled position of Vice President for Health Affairs, effective September 1. Dr. Aldrich had been President Kennedy's designee as first director of the National Institute of Child Health and Human Development. His professional distinction and devotion to human ecology seemed destined to inaugurate another new era for medical education in Colorado.

On the facing page: What a difference 35 years make! At top, an aerial view of the new Medical Center in Denver shortly after it was completed in 1924, the camera looking southeast across Ninth Avenue, which intersects with Colorado Boulevard at lower right corner of the picture; note the open fields. Below, a 1970 view looking directly east across Colorado Boulevard, with Ninth Avenue now passing under the seven-story Clinical Research Wing, the entire Medical Center with its parking lots now covering ten city blocks. The Veterans Administration 500-bed hospital and General Rose Memorial Hospital are also seen in the upper left-hand corner of this picture. (Medical Photographic Department, University of Colorado Medical Center)

Certificate of Birth
Certificat
Death

History of Public Health Medicine in Colorado

Roy L. Cleere, MD, and
Rowene C. Danbom*

EVEN as the triumphant shout of "gold" reverberated from Gregory Gulch, the quest for health – rather than wealth – lured thousands to Colorado's dry, sun-drenched slopes. The heralded climate also lulled most of those early residents into the erroneous belief that no special effort was necessary to preserve and protect the public health. They took health for granted, acquiring a false sense of security that was to persist into the 20th century. Thus, for a period of 89 years – from the arrival of the first recorded invalid settler, Andrew Sagendorf, in 1858 to Dr. Florence R. Sabin's post-World War II campaign to popularize public health in Colorado – Coloradoans generally supported health measures and services only during periods of emergency and fear.

The development of public health has been slow and sporadic since the establishment of the first Territorial Board of Health in February, 1876 – six months prior to the achievement of statehood. And even today, in the remarkable era when man is challenging the perils of space, 41 of Colorado's 63 counties operate under that 1876 system of health legislation.

After the explorations of Lt. Zebulon M. Pike (1806-07) and Major Stephen H. Long (1820) were publicized in the East, many traders and trappers came to Colorado in search of beaver and other valuable furs. They were largely a transient population with little or no interest in health and sanitation. They introduced measles and smallpox to the Indians with a resultant heavy toll of Indian lives.

A gathering point for the traders and trappers was Bent's Fort in Otero County, one of the West's most famous trading posts, which also was important in Colorado's health history. A Dr. Hemstead was practicing medicine at Bent's Fort as early as 1846. (The first physician known to have entered the territory, however, was Dr. John Hamilton Robinson, a member of Pike's contingent.) The fort also served, in a sense, as Colorado's first hospital. In 1847, one small room, accommodating two patients on bearskin rugs on the floor, was set aside for the sick and injured.

One of Colorado's first recorded epidemics occurred in 1849, when an outbreak of cholera snuffed out many lives in the Julesburg area. Drainage wells in that area were polluted by the first wagon trains heading west over the Oregon Trail. Heavy coffee drinkers were believed to have escaped many of the early-day water-borne diseases because of the necessity of boiling the water to make their coffee.

The discovery of gold in 1858 precipitated a migration of 100,000 persons to Colorado. Towns were established almost overnight without regard to environmental sanitation. Human sewage was dumped into the streams, and typhoid soon became rife. Physicians came to Colorado with the gold seekers, and by the end of 1859, 18 were practicing in the territory. It was the concern of those pioneer physicians, who organized the Colorado and Denver Medical Societies in

*Dr. Cleere is Secretary, State Board of Health and Executive Officer, Colorado Department of Health; Mrs. Danbom is Public Relations Officer of the Department.

the early 1870s, that provided the impetus for public health in Colorado. In 1873, at the instigation of the doctors, open meetings were held to discuss the public health. The physicians badgered Denver city officials about the dangerous unsanitary conditions and asked for sewers, odor abatement, alley cleaning and the regulation of domestic animals.

Dr. Charles S. Elder, writing in "Colorado and Its People," said: "Physicians of the territory were zealous in advertising the advantages of Colorado's climate, but they seriously objected to the smell of the capital city." Dr. Frederick J. Bancroft of Denver, who was to become president of the first Territorial Board of Health, called Denver "the dirtiest city in the United States," according to Elder. The discussions of the physicians, including their suspicion that the city water was the source of typhoid fever, were widely publicized. But, Elder recorded, "The city officials and the management of the water company proved immune to the strongest criticism administered in the most heroic doses. They stood together."

The physicians were successful, however, in getting a Territorial Board of Health established to advise the legislature on health laws, administer any laws that might be passed and enforce health regulations. The measure establishing the board was enacted by the Council and House of Representatives of Colorado Territory and signed into law by Governor John L. Routt on February 10, 1876. The act directed the board to study the vital statistics of the territory, study the influence of the climate upon disease and health in different localities in the territory "for the benefit of the citizens thereof, as well as for the large number of invalids who seek relief in Colorado"; make sanitary investigations and inquiries respecting the cause of disease; and recommend standard works on the subject of hygiene for the use of the schools of the territory. The act also provided for the appointment by the governor of nine board members, all physicians, and it appropriated $500 for the board's annual expenses. It did not, however, empower the board to enforce public health rules and regulations.

Members of that first board were Drs. F. J. Bancroft, Denver, president; H. A. Lemen, Denver, secretary; A. V. Small, Trinidad; T. G. Horn, Colorado Springs; W. Edmundson, Central City; T. M. Smith, Fort Collins; R. J. Collins, Georgetown; T. N. Metcalf, Del Norte; and W. H. Williams, Denver. The board's first report, covering a seven-month period ended September 30, 1876, showed expenditures of $44.40 for office supplies. The remainder of its appropriation was used to publish the "annual" report. It called to the attention of the authorities and the public its lack of funds:

> When the populace can be persuaded that it is economy to learn and practice the laws of health, appropriations of money to assist them in the attainment of such ends are readily obtained; they become not only willing but anxious to sustain Boards of Health having almost unlimited powers.
>
> Many of the older communities of the world so fully realize the fact "that every death implies a total average of 730 days of sickness," and a consequent curtailment of the wealth of the community in which it occurs proportionate to the productive value of the services of the deceased, that they readily appropriate from the public treasury the comparative pittance required to carry on the work of efficient Boards of Health.
>
> How much more necessary for our own state, whose "stock in trade," to the extent of millions of dollars, is her reputation for salubriousness?
>
> How important that definite information in reference to the healthfulness of our favored region be heralded to the famishing health seekers of the more populous portions of the new world, as well as the continent of Europe?
>
> The extent to which this information will be furnished, as well as the rate, will depend largely on the amount the state invests in enterprises calculated to secure and disseminate reliable information, not only among its own inhabitants, but throughout the length and breadth of the land, on such and kindred topics as have already been selected for study.

Colorado, "The World's Sanitarium"

The Board need not have been concerned that Colorado's salubriousness might go unproclaimed. "No portion of the health frontier, with the possible exception of southern California, received greater nationwide publicity after the Civil War than Colorado," Billy M. Jones wrote in "Health Seekers in the Southwest, 1817-1900." "By 1876," Jones recorded, "Colorado was being flatteringly referred to as 'The World's Sanitarium.' " Sufferers of assorted ailments were flocking to the territory, but for tuberculars and asthmatics, it had become a mecca.

Sagendorf, who arrived by ox team in Denver on November 6, 1858, was a victim of tuberculosis. According to Jones, Sagendorf had been so ill that "boards were carried in the bottom of the wagon to build a coffin for him, as it was generally believed by the others in the caravan that he would die before reaching the new country. He not only recovered but spent the remaining 54

years of an 86-year life span in helping to build up Denver. He was the first secretary of the Auraria Town Company and later was instrumental in consolidating Auraria and Denver." The contributions of scores of others, who, like Sagendorf, came to Colorado to recover, were responsible for much of the development of the state.

In addition to dealing with matters of climate in its first report, the Territorial Board of Health also called attention to the mineral springs of Colorado – another major factor in the territory's appeal to the ailing.

Dr. T. G. Horn, a member of that first Board, made an extensive report on the mineral springs of Colorado, conceding, as he did so, that he found the "greatest difficulty" arriving at the real value of the use of medicinal waters:

> It is impossible for us to say how mineral waters act, yet this is no objection to their use, for how many drugs do we use daily without a knowledge of how they act? Yet they do act, and just as we want them. Another objection is, that like patent medicines, they are highly recommended for all diseases that humanity is heir to, while ignorance prevails as to their composition. This may be true to some degree, but while it is a fact that the medicinal virtues of many springs are overestimated by owners, and that they do contain elements unknown to the profession, they are in no way more so than many of our best remedies of the present day.

In glowing rhetoric, Horn concluded:

> Our state abounds with mineral springs, and that of the most beneficial known to humanity. Add to this our pure mountain air, our beautiful scenery, level roads, cool, refreshing nights, and we can only conclude that God, in his wisdom, created Colorado and endowed her with all the prerequisites to make her a paradise for diseased humanity: for young as we are, and as little as we now know in regard to the curative effect of our springs water and climate, yet there is no part of this state not especially adapted to the relief of some particular disease.

Horn's impression that Colorado was a panacea for illness was widely shared.

In 1880, Dr. Samuel Edwin Solly of Colorado Springs, himself a tubercular who had come to Colorado to recover, estimated that one-third of the state's population had migrated to Colorado to seek health for themselves or their families. (One of the more famous of those was the legendary John H. (Doc) Holliday, who died of tuberculosis at Glenwood Springs in 1887.)

First Vital Statistics

When Colorado was admitted to statehood on August 1, 1876, the Territorial Board of Health went out of existence. Its successor, the first State Board of Health, was established by act of the first General Assembly on March 22, 1877, and charged with the collection and study of vital statistics as a means of determining the causes of illness and death, the control of epidemics and contagious disease, and advice on proper sources of water supplies and places of sewage disposal.

But the fledgling State Board was hampered by the same drawbacks which curtailed activities of the Territorial Board – lack of authority and lack of funds. The Board, in reality, was little more than a discussion group. It tried to collect vital statistics with scant success. Many physicians considered the reports to health officials a nuisance – an attitude, unfortunately, which still is evident. The collection of statistics in 1877 also was difficult because of the sparse population in many areas of Colorado and the peripatetic tendency of both physicians and their patients. Nevertheless, the Board did issue a partial mortality report for 1877, the first official vital statistics report issued in Colorado. It gave these 12 principal causes of death in Denver in their order of frequency:

	Number	Per Cent		Number	Per Cent
Consumption	63	24.7	Typhoid fever	6	2.3
Diphtheria	20	7.8	Diseases – kidney	6	2.3
Scarlet fever	14	5.4	Infantile convulsions	6	2.3
Pneumonia	14	5.4	Puerperal diseases	5	1.9
Diseases – heart	13	5.0	Croup	5	1.9
Diarrhoeal diseases (five years and under 8; over five years, 2)	10	3.9	Congestion of lungs	4	1.5
			All other diseases including 7 cases of old age between 70 and 97 years of age	89	34.9

In addition to the 255 deaths, the Board listed 373 births in Denver during the same period but explained the number was "very deficient because the same checks cannot be enforced."

The Board also reported on a smallpox epidemic which swept the southern portion of Colorado in 1877. Using information obtained from Catholic priests in Trinidad and Walsenburg, the Board reported:

> The smallpox visited in severe form the counties of Las Animas, Huerfano, and Costilla, with a fatality of one death to every 23 inhabitants in Las Animas County; one death to every 10 inhabitants of Huerfano County; and one to every 16 of its inhabitants in Costilla County; footing up 844 deaths in the three counties.

The Board's next epidemic report covered an outbreak of typhoid fever in Denver in the summer and fall of 1879, and also in 1880. In 1879, when Denver's population ranged from 33,000 to 35,000, an estimated 1,200 cases of typhoid fever occurred. The disease also was prevalent the following year, but only half as many cases were estimated. "The total number of death certificates returned to the city physician declaring typhoid fever to be the cause of death was 40 for 1879 and 57 for 1880 to October 20th," the Board reported. "That functionary, however, declares it to be his opinion that the returns of the deaths for the year 1879 were very imperfect. . . ." The Board blamed the epidemic on foul air, filth-sodden soil and polluted water. It contended that the contents of both cesspools and privies were escaping into the surrounding porous soil and sand, thus contaminating the earth, the air and the well water alike.

A high incidence of typhoid fever was to plague Denver and Colorado for another 50 years and give the state "a black eye" on the public health countenance.

Lack of Laws, Lack of Money

The State Board of Health, like the predecessor Territorial Board, realized quickly that a $500 annual appropriation was barely enough to carry out its routine work. In 1880, however, it voted to pay its secretary, a physician member of the Board, $100 a year from that allocation. Dr. F. J. Bancroft thus became the first paid public health employee in the state service.

The frustration of trying to control disease, gather statistics and make meaningful recommendations on so niggardly a budget and without authority gradually eroded the Board. One by one, the members quit. Meetings were discontinued after the state auditor refused to approve vouchers, a stubborn practice that was to demoralize health workers and hinder operations throughout the ensuing years. Only two Board members remained in 1885, and when their terms expired on June 31, 1886, the Board ceased to exist.

In 1892, Mayor Platt Rogers of Denver named Dr. H. K. Steele as the city's health officer. With the help of two assistants, Henry Sewall and W. P. Munn, Steele started a hospital for persons with communicable disease. Colorado's first public hospital had been established in Denver in 1860 by a former city health officer, Dr. J. F. Hamilton. It was in operation, however, only until he joined the Army a year later. The first private hospital in the state, St. Joseph's, was established in Denver by the Sisters of Charity in 1873. In 1890, the state's first tuberculosis sanitorium, a forerunner of today's world-famous National Jewish Hospital, opened in Denver.

Sporadic outbreaks of cholera had occurred in Colorado, but the fear of a nationwide epidemic in 1892 was responsible for the appointment of the next State Board of Health in September of that year. Asian cholera had been carried into the port of New Orleans and reportedly was spreading. Colorado citizens wanted someone to be responsible for quarantining persons suspected of carrying the infection into the state. The public soon learned, however, that the new Board, shackled by inadequate laws, lacked the power to quarantine cholera suspects or anyone else with a contagious disease.

Physicians and other concerned citizens drafted two public health measures late in 1892. One was to create and empower local boards of health, and the other was to create a State Board of Health and define its powers and duties, make an appropriation therefor and provide for the punishment of violations thereof. An annual budget of $5,000 was proposed, but that amount was cut in half and earmarked for emergencies only when the bills were passed in 1893.

The new Board of Health, the state's third, was appointed in April, 1893. The only funds available for its operation, except in health emergencies, were those collected from fees and for embalmers' examinations. The Board was successful, however, in 1895 in establishing a small laboratory in cooperation with the City of Denver in City Hall, primarily to do diphtheria culture work. (The first antitoxin for the treatment of diphtheria had arrived in Denver in November,

1894.) Health officials examined the throats and noses of children attending public institutions. If they harbored diphtheria germs, they were denied admission. A total of 1,487 examinations were conducted during the laboratory's first year of operation. Denver recorded 224 cases of diphtheria in 1895.

Public apathy took its toll of the third Board, as it had previous bodies dedicated to the public health. By 1900, four members had resigned because they were unable to support a health program under the existing laws and with inadequate funds. Replacements were named, and the Board continued. Late in 1900, the Board hired its first employees, a stenographer and a clerk to compile vital statistics. The following year, 1901, the Board issued its first complete mortality report, which indicated 1,303 deaths from tuberculosis for the year, 333 from typhoid fever, 316 from scarlet fever and 212 from diphtheria.

Outbreaks of typhoid, frequently traced to contaminated drinking water, were a source of continuing concern to the Board. There was virtually no bacteriological purification of the water supply, even in the principal city of Denver. Dr. William C. Mitchell, who later was to serve as bacteriologist for the State Board of Health, was instrumental in 1903 in getting the Denver Union Water Company to adopt the slow sand method of filtration. The city later added a copper sulphate solution to destroy algae and other fungi. Still later, the Denver water was treated with calcium hypochlorite and liquid chlorine. The result of each sanitary improvement was a consistent lowering of Denver's typhoid death rate. Denver was to lag for another 60 years, however, in providing an adequate sewage disposal system.

Heavy Tuberculous Population

About 1900, it was discovered that tuberculosis is a communicable disease, and the climate started to lose its appeal as a major therapeutic factor in control of the disease. Rumors abounded that Colorado was considering quarantining tuberculars. An editorial in the January 25, 1902, edition of the Journal of the American Medical Association, repeating the rumor, prompted a retraction request from the State Board of Health. The Board's statement said, in part:

> We hereby certify on our honor as professional gentlemen that, so far as we are aware, no member of the Colorado State Board of Health ever proposed the subject of preventing tubercular persons entering the state . . . that on the contrary, in February, 1900, the Colorado State Board of Health issued a circular containing the following: "That this climate has saved the lives of many who have come early cannot be doubted. There is no need to talk of quarantining against consumption. Such a course is both unnecessary and impracticable. Doubtless, many persons with advanced tuberculosis should not be sent here, but for those who can be benefited by coming, Colorado should have nothing but a warm welcome."

Despite the Board's sentiment, the welcome apparently started to cool. Jones recorded that the tuberculars were "rejected as the unwelcome bearers of a lecherous bacteria." Dr. Henry Sewall dealt with some of the problems created by Colorado's tuberculous population, estimated in the early 1900s at from one-fifth to one-third of the total:

> Let fame pronounce a locality as curative for tuberculosis, and at once invalids flock there and, ere long, that place becomes a hotbed of the disease, and dangerous for well people to visit. There has been no deterioration of the climate, but the lack of sanitary care of the agents of infection has proved that geographical location is but a minor factor in determining the origin and course of the disease. All municipalities which have a reputation for the amelioration of tuberculosis have to meet the problem of caring for poverty-stricken consumptives who have emigrated from various parts of the country with barely more financial means than sufficient to pay the railway fare. The charitable organizations of Denver, at least, have been burdened greatly by this class of cases.

Concern for the social welfare aspects of tuberculosis, to which Sewall alluded, rather than the public health aspects was to dominate the consideration of tuberculosis in Colorado for years to come. As the medical profession increasingly prescribed bed rest for tuberculosis patients, tuberculosis hospitals were placed in operation throughout the state. At one time, there were 17 such hospitals.

Vaccination Begins

On April 8, 1901, the State Board of Health reported that every county in the state had a physician as health officer. A good bit of the health officers' time was consumed in promoting immunizations and trying to enforce quarantines. Scarlet fever, smallpox, diphtheria and typhoid were prevalent in many areas. In 1902, an order of the Montrose County Board of Health, requiring the vaccination against smallpox of all school children, was challenged in the courts, and the judge ruled against the health board. The State Board of Health recommended to the State

Superintendent of Public Instruction that all pupils be immunized before being permitted to attend school. The recommendation, without the force of law, was largely ignored. Finally, in 1906, after an outbreak of smallpox at Victor, the local school board issued compulsory vaccination orders. That edict also was challenged in the courts, but it was held reasonable and proper. Since then, local officials have been able to compel immunizations in the public schools of Colorado.

By 1904, the State Board of Health had five employees, and the payroll totaled $375 a month. By 1907, the General Assembly created and funded a pure food division under jurisdiction of the Board, and it also authorized a state system of birth and death registration. The vital statistics function was not funded, however, until 1910, by which time the Board's staff had increased to 13 employees. Gradually, as the legislature became aware of problems, it gave additional authority to the Board to protect the public health.

In 1909, the Board was charged with the inspection and licensing of hospitals, dispensaries and sanitoriums, and an upgrading of standards began for those institutions. About the same time, mounting concern over tuberculosis in the state led to: (1) the organization of the "Colorado State Committee for the International Congress on Tuberculosis," the first of five names by which the organization was known before it finally became the Colorado Tuberculosis Association 10 years later, and (2) the passage of legislation abolishing public drinking cups and compelling tuberculosis registration.

The TB Association, which by 1912 had broadened its scope to fight all communicable diseases, played an important role in the development of public health in Colorado. It sponsored many activities for the betterment of the public health, including health crusades and traveling clinics, and it laid the framework for public health nursing services in the state. In 1913, the TB Association, in cooperation with the State Board of Health, conducted the first concerted educational campaign to call attention to the contamination of Colorado's waters. The Board and the State Health Department kept up their anti-pollution efforts and sought statutory authority to fight pollution repeatedly over the ensuing years, but it was not until 1966 that the General Assembly finally passed a comprehensive water pollution control law, and then it vested control in a separate commission.

The Board of Health was composed only of physicians until 1916, when two lay members were appointed to the Board. By that time, the Board had five divisions – vital statistics, medical inspection, bacteriology, chemistry, and food and drugs. Five other divisions were created in the next 19 years, these being: plumbing inspection (1917); venereal disease (1918) changed to social hygiene (1925); public health nursing (1922) enlarged to child hygiene and public health nursing (1925); sanitary engineering (1925); and administration (1925). Also in 1925, medical inspection was changed to epidemiology.

In 1922, Denver experienced a smallpox epidemic. Mitchell described it:

> What started as a mild epidemic . . . soon became a veritable conflagration. There were not enough nurses to take care of the cases. In the year 1922, there were 270 deaths from smallpox in Denver. Smallpox cadavers were piled high in some of the rooms of the County Hospital, and finally the U. S. Government detailed Dr. Thomas Parran to come to Denver to take charge of the situation.

The State Board of Health also was confronted with the problem of venereal disease in the state. As early as 1893, the exploitation of persons with venereal disease had become of such great concern that the legislature passed a measure prohibiting "the advertisement of substances to cure private diseases, prevent conception or produce abortion." On February 7, 1916, the Board passed a regulation making venereal disease reportable by physicians. Names and addresses of the patients were not required, and the Board had little success fighting VD. In 1918, the legislature created a venereal disease division and empowered the Board to promulgate regulations covering all phases of VD. The legislature also created a 28-bed state detention home for women infected with venereal disease. The home operated from April, 1920, to October, 1925, when it closed because of lack of funds. The division of venereal disease operated free VD clinics at various locations in the state until 1933 when appropriations for the division were stopped. Venereal disease control was not resumed until 1937.

Today, Colorado's venereal disease statutes are considered among the most progressive in the nation, but public health officials still encounter the incomplete reporting which plagued them in 1916. Colorado is one of 14 states with laws permitting physicians to treat minors for VD without parental consent, that provision having been added to the statute in 1967.

First Public Health Nurses

Public health nursing was initiated in Colorado on November 7, 1889, when a group of women volunteers, known as the Denver Flower Mission, organized to visit Denver's sick. They hired two nurses in 1892, and a third in 1905 and incorporated as the Visiting Nurse Association. In the period 1921-1925, the Colorado Tuberculosis Association established public health nursing services in 11 counties and also participated in traveling clinics, which started operation in 1922 under funds provided by the federal Sheppard-Towner Act of 1921. Other participants were the State Board of Health, University of Colorado Extension Division, Colorado Welfare Bureau and Colorado State Dental Association. Colorado was a forerunner in using the traveling clinic concept, and the clinics were tremendously successful. They reached virtually every county in the state with a program which included a conference on child welfare, public health and community problems; free physical examinations of children, particularly those of pre-school age; and exhibits on child welfare and public health. The American Red Cross also was a leader in the establishment of public health nursing services in Colorado. It had organized a chapter in each of the state's 63 counties during World War I, and the financial resources of these local chapters were used to provide public health nursing after the war ended. Rather than limiting its activities to treatment of the sick poor, as had been done in the past, the Red Cross concentrated on the prevention of sickness. This generalized nursing service was known as the Town and County Nursing Service. As the TB Association and the Red Cross exhausted their funds, local sponsors assumed the cost of public health nursing services. These included county commissioners, school boards, women's groups and the like. In 1925, the State Board of Health named its secretary and executive officer, Dr. S. R. McKelvey, to head a newly-created Division of Administration. But a gubernatorial veto of the Health Department's appropriation left him without funds except for travel and incidental expenses.

On January 30, 1928, an outbreak of meningococcus meningitis in Longmont, Lafayette, Louisville, Superior, Erie, Frederick, Firestone and Dacona precipitated a State Board of Health order banning all public gatherings, closing schools and placing the Columbine Mine and the Town of Serene in Weld County under strict quarantine and isolation. It marked the first time the Board had taken such drastic action. The Great Depression depleted the public health nursing ranks and stifled other badly needed public health services. By 1935, only 17 counties had public health nursing services. The Depression also caused the demise in 1932 of the state's first fully organized local health department, the Otero County Health Department, which had been organized in 1924 under the auspices of the International Health Board, in cooperation with the Board of County Commissioners. The Otero unit was reestablished in February, 1938. Twelve other local units, serving 85 per cent of Colorado's population, have been organized since then. These include Weld County, 1938; El Paso City-County, 1939; Denver, 1939; Las Animas, 1944, enlarged to Las Animas-Huerfano, 1951; Tri-County (Denver suburban), 1948; Northeast, 1948; San Juan Basin, 1948; Mesa County, 1949; Pueblo City-County, 1952; Boulder City-County, 1954; Jefferson County, 1958; and Larimer County, 1968. In 1933, the Colorado Administrative Code changed the name of the State Department of Health to the Division of Public Health, with control remaining in the State Board of Health.

Sewage Disposal, Then and Now

Sewage disposal continued to rank as a major public health problem in Colorado, with most of the cities and towns brazenly dumping untreated sewage into the rivers and streams. Denver was among the worst violators, creating an open sewer of the South Platte River whose waters were used downstream to irrigate fruit and vegetable crops. Through efforts of women's clubs and the Denver Medical Society, the citizenry finally was aroused in 1934 and passed a $3 million bond issue to correct the sewage problem. Half of that amount was to be used to divert Western

Slope water for use as a dilution factor. The rest of the money was used to build a magnetite type filter plant, which became operational in 1937.

Denver's grandiose plan didn't work out as anticipated. The diversion water ended up in Clear Creek and never got over to the sewage plant for dilution use. And the first of the revolutionary type filters plugged up within a year. By 1941, the new plant had failed to operate properly, leaving the city with only inadequate primary sewage treatment just as its population started to mushroom. The seriousness of the sewage situation had been graphically portrayed in October, 1934, by some deplorable statistics made public by Dr. Edward N. Chapman of Colorado Springs. Dr. Chapman pointed out that 3,500 children under the age of two had died in Colorado in the 10-year period 1924-1934 from diarrhea alone. "These dead babies would populate a town the size of Montrose," he wrote in "Colorado Medicine." "A child born in Colorado between 1929 and 1931, in a county having our average death rate, faced five times the chances of dying from diarrhea that he would have faced had he been born in the average Nebraska county."

Colorado Castigated

Now, Colorado started receiving publicity far different from the glowing accounts of former years on the climate and the mineral springs. A "New Republic" editor, Bruce Bliven, wrote a scathing 1934 editorial in his nationally-circulated magazine, which said:

> That Colorado is indeed a pleasant land, everyone who has been there is glad to testify. As a vacation resort, however, its merits need to be described with a certain amount of qualification. For the painful truth is that Colorado's health record is a shockingly bad one, and it is still more painful to confess that this bad record is the fault of her own citizens.
>
> Colorado has an extraordinarily high incidence of so-called "filth diseases," and there is the best reason to believe that this is because nearly all of her chief cities refuse to install proper sewage disposal plants.
>
> As a result, sewage from these cities (and conspicuously from Denver, which contains one-quarter of the state's population) gets into the rivers of the state. Water from these rivers is used in irrigation; vegetables are polluted, and are then eaten. . . .
>
> Reports of the U.S. Public Health Service and of a special committee of the Colorado State Medical Society confirm each other in every particular in indicating that Colorado has an inexcusably bad record in regard to filth diseases. In the years 1920-29, for example, there were 8.2 deaths from typhoid fever per 100,000 population in Colorado and only 6.6 deaths in the entire public health registration area of the United States, although general conditions in Colorado are such that its health record ought to be better than average.
>
> Filth diseases are particularly hard on children, which perhaps explains why the infant mortality in Colorado in 1929 was 91.3 per 1,000 live births and only 68 throughout the rest of the registration area. Deaths from diarrhea and enteritis among babies under two years of age were 37.9 in Colorado and only 29.7 elsewhere. The infant mortality rate in this state is reported to be 80 per cent higher than in Kansas, 36 per cent higher than in Wyoming, 64 per cent higher than in Utah and 92 per cent higher than in Nebraska.
>
> Of 68 large cities in the United States, 48 have a lower typhoid death rate than has Denver. It is noteworthy that each year widespread attacks of diarrhea and dysentery begin just about the time that Colorado-grown vegetables reach the market. So seriously do the federal authorities view the situation that they have even considered refusing to permit the interstate transportation of Colorado-grown vegetables. Incidentally, it should be noted that the supply of domestic drinking water in Colorado is considered good, and that no relationship has ever been traced between the state's milk supply and the annual outbreaks of diarrhea and dysentery.

Meanwhile, state health officials were striving to get Denver to clean up its sewage. On August 15, 1932, they met with health officers and county and city officials from Morgan, Weld, Adams and Denver counties to discuss the irrigation of vegetables with untreated sewage. Two months later, on October 19, 1932, a committee of the Board met with Major George D. Begole of Denver regarding the pollution of the Platte by Denver sewage. Considerable public awareness of stream pollution was achieved but no remedial action. Finally, on October 26, 1934, the Adams County district attorney filed suit, seeking an injunction against the City of Denver to abate the public sewage nuisance. The State Board of Health resolved to "render all honorable and reasonable support in the legal move."

Continued pressure resulted in a favorable vote on a municipal sewage disposal plant in Denver, but the problems didn't end there. A burgeoning population and inadequate treatment facilities continued to plague the Capital City until March, 1967, when a $17 million Metropolitan Denver Area Sewage Disposal plant was put into operation. Denver was the first of many cities against which the State Board of Health threatened to bring action, or did bring action, in the slow, laborious effort to clean up Colorado's rivers and streams. By the time the State Water Pollution Control Commission assumed authority over both domestic and industrial wastes in 1966, more than 97 per cent of Colorado's population served by some form of sewage collection

system was also being served by secondary (or complete) treatment facilities. The achievement was outstanding and finally has now placed Colorado well ahead of most states.

The Health Board's accomplishments in water pollution control – as in all other areas of public health – were achieved by plodding and perseverance, usually with little public support or public funds. For too long, Coloradans generally had given little, if any, thought to the concept of prevention. For years, they considered public health a charity function and little more.

Overlapping Functions

Dr. C. E. Waller of the U. S. Public Health Service, who did a survey of public health in Colorado at the request of the Board in 1930, pointed out that the divisions had been created one at a time as a particular interest developed in an activity. He said:

> While numerous agencies and organizations have interested themselves in various phases of public health activity within the state, the development of official facilities and functions has been based upon expediency rather than upon a well planned program evolved through careful study of the public health needs and resources of the state.
>
> Public health functions have been distributed here and there among various state departments and institutions with the result that no less than seven different official agencies are now doing some health work on a statewide basis.
>
> As would be expected, there has been thus created a situation in which overlapping, duplication, lack of coordination, and improperly balanced programs are preventing the state from realizing full value for the amount being expended for the protection of the public health.

Waller advocated a strong health department and the centralization in it of all functions relating to the protection of the public health. He also recommended that county health work be subsidized by the state. The fragmentation of which Waller spoke continues to exist to some extent, and the subsidization of county health work remains a knotty problem with which health officials and state legislators still struggle.

Tuberculosis control was a good example of an area of overlapping. In 1935, a Division of Tuberculosis Control was organized in the State Department of Public Welfare. Welfare's primary responsibility was to provide hospitalization for welfare recipients with tuberculosis, and the Tuberculosis Assistance Act provided a $50,000 annual appropriation for that function. A Division of Tuberculosis Control was established in the Division of Public Health two years later, in 1937. At that time, public health assumed all other tuberculosis control activities but with only limited initial success inasmuch as many persons considered tuberculosis control a relief program rather than a public health program. The two agencies went their separate ways in tuberculosis assistance and control until 1962, when they reached agreement on a coordinated Tuberculosis and Assistance Control Program with unified direction, correlated personnel and a single office in the State Health Department building. A single physician now heads both the tuberculosis control and tuberculosis assistance efforts.

Colorado has made outstanding progress in tuberculosis control since the days of Andrew Sagendorf and the other early health seekers. As of December 31, 1968, all of the state's known active tuberculosis cases were on drug therapy, ranking Colorado first in the nation in this category of care of tuberculosis patients. The national average of known active tuberculosis cases on therapy is about 55 per cent. The total number of persons on the Colorado tuberculosis case register as of December 31 was 2,026. Of that number, 1,884 were at home (133 of which were active cases), 115 were hospitalized for tuberculosis and 27 were inactive cases in institutions for another reason.

First "Big Money," and Political Infighting

The Social Security Act of 1935 made federal funds available for health and sanitation work in the state. Dr. Roy L. Cleere, who on March 4, 1935, had been named secretary of the State Board of Health and executive officer of the State Division of Public Health, moved quickly to take advantage of the federal funds. In 1935, the Division had a total appropriation of $40,000 and 14 employees. In 1936, funds were allotted for maternal and child health work and crippled children's services. Public health nursing had been a "function" of the State Division of Public Health since 1922, but now, with additional funds, it became a viable function. In 1937, funds were provided to hire sanitarians for the control of milk and milk products, an area which before then had been badly neglected.

Entrance into the milk sanitation area also marked the beginning of a long, running battle between Dr. Cleere and the State Civil Service Commission. Civil Service tried to force upon the Board a milk inspector Dr. Cleere felt was unqualified, and he refused to hire the inspector. Civil Service then withheld certification of the July, 1937, payroll for the entire Division of Public Health. It was only the first of many bouts with Civil Service over Dr. Cleere's and the Health Board's insistence that staff members had to have public health qualifications to serve in the department. The Denver Post of September 1, 1937, reported:

> A showdown in the political fight which is raging over control of the Colorado State Board of Health was forecast for Wednesday night when the city hall-statehouse machine is expected to make another attempt to oust Dr. R. L. Cleere as secretary and executive officer. He heads an administrative setup with great patronage possibilities and the expenditure of $322,000 a year.

The hassle stretched into 1940, and finally on November 8 of that year, the Civil Service Commission accused Dr. Cleere of contumacy, said he was not in the "classified service" and held he was not entitled to a pay check. Loyal allies, including the Colorado Medical Society, came to his defense. On January 12, 1941, District Judge Henry A. Hicks ruled that the Commission had no power to cancel Dr. Cleere's provisional appointment, but he didn't get back on the payroll until February 27, when the Commission finally dismissed the ouster action, and he was not permanently certified to his post until November 7, 1946, after winning in competitive civil service exams for the position.

Politicians were to look on the Health Department as a "political football" until passage of the Sabin Health Laws in 1947. Meanwhile, the State Board of Health continued to cope with the growing concerns of public health as best it could. In 1937, the first dentist was appointed to the Board, and in 1941, a Dental Health Division was created to promote the fluoridation of public water supplies and good dental health and to provide dental and orthodontic care to indigent children. The gradual addition of subdivisions over the years had created the following breakdown of functions in the Division of Public Health by 1941: administration, epidemiology, sanitary engineering, food and drugs, laboratories, vital statistics, plumbing, maternal and child health, dental health, tuberculosis control and public health nursing.

Milestones

State health laws and amendments enacted over the years have included: communicable disease control, 1893; vital statistics, 1907, 1912, 1967; tuberculosis control, 1893, 1967; venereal disease control, 1918, 1967; plumbing, 1919; food and drug, 1919; sanitary engineering, 1919; restaurant inspection and licensing, 1935; sewage effluent, 1959; radiological health, 1965; mandatory testing for phenylketonuria (PKU), 1965; air pollution control, 1966, 1967, 1968, 1970; water pollution control, 1966, 1967, 1968; solid wastes disposal, 1967; and pet shop and kennel licensing, 1967.

The State Legislature also has enacted measures establishing two divisions within the State Health Department, the Division of Alcoholism in 1961 and the Division of Water Pollution Control in 1966. In addition, several legislative measures have provided for the appointment by the governor of advisory committees to the Department, such as the Radiation Advisory Committee and the State Health Facilities Advisory Council. Similarly, legislation resulted in the creation of the Air Pollution Variance Board.

In 1941, the Colorado legislature reorganized the state government through passage of a measure known as the Administrative Code of 1941. Under this act, the Division of Public Health became a division of the executive branch of the government under the direct supervision of the governor. The secretary of the State Board, Dr. Cleere, became the executive officer of the Division of Public Health. The period during World War II was one of trying to maintain the status quo as manpower demands for the military and defense effort caused an acute shortage in the ranks of health workers. In Colorado, health officials stepped up venereal disease surveillance and maintained a close liaison with both the military forces and industry on VD, occupational health and other matters. The war did tend, however, to have a salutary effect on public health. Many Coloradans who were called to active duty during the conflict were exposed to modern sanitary methods and became aware, for the first time, of the importance of good sanitation prac-

tices. They, along with many post-war newcomers to Colorado, who came from established eastern communities with adequate health facilities, formed the nucleus of a population starting to become health-oriented.

The Florence Sabin Era

The turning point for public health in Colorado came late in 1944 with the appointment of Dr. Florence Rena Sabin, a 74-year-old retired physician, as chairman of a Sub-Committee on Health of the State's Post-War Planning Committee. Dr. Sabin had been an eminent scientist, one of the first women to earn an MD from Johns Hopkins University, its first woman full professor, and the first woman member of the Rockefeller Institute for Medical Research. But her Colorado appointment was not made for that reason. Instead, it was a happenstance. Governor John Vivian had established the Planning Committee, with a number of important sub-committees, to get the state moving again after the static period of World War II. He had not included a sub-committee on health on his list, or any woman among his appointees, an oversight called to his attention by the late Frances (Pinky) Wayne, a Denver Post reporter and a fervent feminist. Miss Wayne not only badgered the chief executive to add a sub-committee on health, but she also insisted upon the appointment of Dr. Sabin to head it. Elinor Bluemel, in her "Florence Sabin – Colorado Woman of the Century," recorded that Vivian's advisors assured him Dr. Sabin wouldn't give him any trouble, that she was a nice little old lady who'd spent her whole life in the cloister of the laboratory. Assured that the pleasant woman in the old fashioned clothes would "upset no applecarts," the governor appointed her to the unpaid sub-committee post. The appointment, however, was to mark the beginning of a lot of "upset applecarts" and a new era for public health in Colorado. Dr. Sabin was aware that before she could launch a campaign for public health, she would have to have documented evidence of conditions in Colorado. She persuaded the governor to ask for a health survey of the state, the American Public Health Association (APHA) to make the study and the Commonwealth Fund to foot the bill. APHA assigned Dr. Carl E. Buck to the study, which proved to be an eye-opener. He studied and analyzed vital statistics and arranged the data until it told a vivid story of Colorado's glaring deficiencies. For example, 47 states had lower death rates from scarlet fever, 44 lower death rates from diphtheria, 43 lower death rates from diarrhea and enteritis, 43 lower death rates from pneumonia, 42 lower death rates from rheumatic fever and 42 lower infant mortality rates. Buck estimated that 8,245 deaths from preventable and controllable causes in the period 1940-1944 could have been prevented had existing knowledge concerning preventive medicine and health protection been universally applied throughout Colorado. Those 8,245 persons who died needlessly in the five-year period represented almost three times the 2,699 Coloradans who had died or were missing in World War II. Buck pointed out that the state was contributing to public health less than 10 cents per capita, and the state allocation for health amounted to only 14 per cent of the total health expenditures. And his report was blunt about the political machinations of the Health Department. He said:

> Unless public health can be freed from politics by establishing a real State Department of Public Health and by completely reorganizing the State Civil Service System, there is little hope of improving Colorado's none-too-enviable health record. Public health is altogether too important to the people of any state to have it so placed in the government as to be so completely susceptible to political machinations and maneuvering.

Buck labeled the Civil Service Commission "a formidable barrier to the procurement of good people and a disgrace to the state." The Buck report was not destined to gather dust on a shelf. It was all the ammunition Dr. Sabin needed. She wasted no time letting Coloradans have both barrels. On March 29, 1946, Dr. Sabin invited 59 of the state's leading citizens to dinner at the Brown Palace Hotel to kick off her campaign to elevate the low status of health in Colorado. She announced that out of 20 major causes of death in the United States, Colorado exceeded the national average in 13 causes, and the purposes of her committee would be to lower that rate to the national average. The dinner meeting was the first of many which Dr. Sabin called to discuss health and for which she usually picked up the tab. One time she invited the Civil Service Commission to discuss the need for adequately trained professional health personnel; the next time it was the dairy interests to talk about the mandatory vaccination of herds and the pasteurization of

milk; then the tuberculosis groups came to exchange ideas on a 100-bed tuberculosis hospital or wing to be related to Colorado General; the sanitary engineers broke bread with the Sabin committee and discussed adequate sewage disposal.

William F. McGlone, Denver attorney, who later was to become president of the State Board of Health, was a member of Dr. Sabin's executive committee. She later explained the purpose of her dinner meetings in an article, "The People Win for Public Health in Colorado":

> At each meeting we invited guests who were either groups that would be affected by the proposed development of health services, or experts who could help us with special knowledge and advice. Thus, we planned to forestall opposition in advance. . . .
>
> One of the outstanding achievements of the program was the full cooperation that was won between the State Medical Society . . . and the Public Health Services. Two members of the Public Policy Committee of the State Medical Society became members of the health committee and made a liaison between the two groups. We finally presented common bills to the legislature, jointly drawn and jointly sponsored. Indeed the Medical Society gave up its tax exempt status and increased its dues that it might support an active lobby.
>
> Another important success in our health program is that we have won the support of the Dairy Industry for health inspection. Like the dairy group in some other states, our group had long feared and fought health inspection of their industry. We had many conferences with them, indeed initiated by their inviting me to a luncheon where I proved a bumptious guest by asking them why they fought us and by asking one of their number to join the health committee. He gave us much help and we had conferences with members of the Dairy Association, with all the experts on the subject of milk in Colorado, both from the federal and state groups. We came to full agreement on the need for higher standards and improved practices for production and processing of milk and milk products, but the Dairy Industry wanted to have it designated by law that a dairyman must be on the Board of Health to represent their industry. We refused to accept the principle of representation by any group by law, and much to their surprise, we won our point in the legislature. We did not oppose the idea that the Governor might choose a dairyman for the Board of Health, and indeed he did appoint both a producer and a processor and now the State Department of Health and the Dairy Industry will work together with good will to a common purpose. I find this an interesting example of a method of dealing with a controversial issue of long standing; namely, extended discussions to determine all the many details on which adjustments can be made, and the very few, or even one principle which is judged too critical for compromise.

In addition to winning over the "vested interests," Dr. Sabin took her fight to the people after the Buck recommendations had been translated into eight specific legislative bills – five establishing services for health and making appropriations therefor and three for the control of specific diseases. One of the most important of the measures drafted for the 1947 legislature created a new Department of Public Health, taking it from the administrative branch of state government and establishing two divisions – the State Board of Health as the advisory, consultative and judiciary branch, and an executive division consisting of the state health officer and his staff. Another important measure was permissive legislation enabling the establishment of county, city-county and multiple-county health units.

Her 1946-1947 Campaign

Paying her own personal expenses and getting out in all kinds of weather on all kinds of roads, Dr. Sabin stumped the state in the cause of health. Federal funds enabled the Sabin committee to employ an executive secretary, Herbert Moe, who organized the community meetings throughout the state. The "little old lady" who'd lived a cloistered scientific life came alive at any podium. She'd first discuss the general public health situation in Colorado and then go into specifics on the sewage, milk, or communicable disease situation in the area where she was speaking. She then explained the proposed health bills, which very quickly were dubbed "the Sabin bills." Wherever Dr. Sabin took her grassroots campaign, she won zealous converts to public health, particularly among the women. Health became such a "hot" issue that both political parties in the state included health planks in their 1946 platforms. (A polio epidemic that same year, 900 cases, and the closing of the Pueblo State Fair to children under 18 because of the outbreak, also focused public attention on health.)

Gordon Gauss, veteran statehouse reporter for The Associated Press, recalled a corridor conversation between two legislators which he overheard when the Sabin bills came up on the floor. "Are you going to vote for them?" asked one legislator. "Hell, yes!" his colleague replied. "I'm not going to have all the women in my district against me."

Ella A. Mead, MD, founder of the Weld County Health Department. For forty years or more a strong leader of the Weld County Medical Society, she also served 27 years continuously on the Colorado Medical Society's Judicial Council, many years as its Chairman.

Colorado's Dr. Florence Sabin, 1871-1953, recognized nationally as the "Medical Woman of the Century."

A turn-of-the-century Visiting Nurse, representing the Weld County Health Department, making one of her regular calls on a dry-land farmer and his family. (Courtesy Weld County Health Department)

All of the Sabin bills but one passed by an overwhelming vote with only minor amendments in the 1947 legislative session. The so-called cow health bill, directed at the control of brucellosis in cattle, was the only complete defeat that year, but it too cleared the legislature the following session.

EDITOR'S NOTE: Even before her Colorado public health activities, Florence Sabin was the recipient of honorary doctorates from fourteen different colleges and universities, and in the 1930s was known as the world's greatest living woman scientist. A bronze statue of her now graces Statuary Hall in the national Capitol.

The reorganized State Health Department moved quickly to provide the "health to match the mountains" which Dr. Sabin had envisioned. Three new sections (health education, hospital facilities and veterinary medicine) were added by January 1, 1948, bringing to 19 the specialized sections in the Department. A greater budget and more qualified personnel made it possible to provide more consultation and direct service to local areas. Before the Sabin measures were passed, only four counties had real health departments. By 1948, there were eight single or multiple county health units providing basic public health service to 18 counties. Also early in 1948, 22 laboratories in the state were approved by the State Health Department to perform premarital and prenatal blood tests.

The Maternal and Child Health Section placed special emphasis on immunization against diphtheria and smallpox by assisting local health officers and local physicians in organizing clinics. For the first time, a planned program was established directed at a reduction of the death rate from whooping cough and measles.

The Crippled Children's Section inaugurated a statewide rehabilitation and physical therapy program for polio victims. (Polio was to continue as a major crippler and killer until after widespread distribution of vaccine at "Stop Polio Sundays" held throughout Colorado in 1962 with the full support and cooperation of the Colorado Medical Society. The State Health Department, however, started distributing Salk vaccine to children and pregnant women in 1954. Colorado's worst polio year was 1951 when 1,065 cases were recorded.) The State Health Department also in 1948 expanded laboratory services without charge to physicians, dentists and public health workers throughout the state. For the first time in Colorado history, every licensed restaurant was inspected in 1948 by a state or local health department sanitarian. Also that year, the State Board of Health passed regulations concerning the production and processing of milk and dairy products, demanding a high degree of sanitation and requiring pasteurization of all milk and milk products for human consumption after June 1, 1949. The Department also started an exhaustive scientific study of stream pollution prior to the setting of standards governing sewage treatment. And the Board adopted new codes on water supplies and plumbing to enhance the quality of drinking water and protect the public health.

In cooperation with the University of Colorado Medical Center, the Department developed an extensive premature infant care program to reduce the infant deaths attributed to complications of premature birth. By 1949, a Social Service Section had been added to the Department to provide consultative service on any social problem related to health. 1949 also marked the actual beginning, after months of preliminary work and planning, of one of Colorado's most successful public health programs, the hospital construction program made possible by the passage in August, 1946, of the federal Hill-Burton law. The 27-bed Delta Memorial Hospital was the first project completed under the program in Colorado.

In the next 20 years, 98 Colorado health facilities would be constructed with help from Hill-Burton funds administered through the State Health Department. The 1949 legislature, following the pattern established in 1947, passed several measures designed to improve health conditions in the state. Among them were a hamburger bill defining hamburger, ground beef or chopped beef, limiting the fat content and prohibiting the use of coloring in any fresh meat, a flour enrichment bill, and a measure giving the State Health Department licensing authority over plants handling fluid milk for human consumption. The Department also initiated a migrant health program in 1949 with the establishment of a clinic at the Fort Lupton labor camp.

Big Growth in 1950s

Colorado's population jumped 32.4 per cent in the decade 1950-1960, and the state's fantastic growth created numerous public health problems over and above the simple factor of numbers. While the overall population increased, 34 of the 63 counties recorded population losses as more and more persons flocked to urban areas. Major public health problems involving housing, sewage, water supplies, air pollution and solid wastes disposal were intensified. Rural areas started finding it increasingly difficult to support basic health services and sufficient medical facilities.

In 1960, for the first time, the various services of public health were mobilized under one roof as the State Health Department occupied a new headquarters building at 4210 East 11th Avenue in Denver. As demands for health service continued to grow, however, the 58,000 square feet of office and laboratory space were to prove inadequate, and construction of a 25,000-square-foot wing addition was completed in 1970.

The Colorado Health Department was among the first official agencies in the nation to indicate concern over the potential exposure of uranium miners to radioactivity. Thus, in cooperation with the U. S. Public Health Service, it began a study in 1950 to determine the effects from exposure to small amounts of radioactive ores over a long period of time, the amounts and kinds of radiation existing in the mines and mills, the contamination of water supplies by radioactive materials, the effects of radiation on plant life and the effects that working radioactive ores have on persons living in the area but who are not directly exposed. Colorado was to continue its leadership in radiological health throughout the years, conducting comprehensive monitoring and surveillance programs in connection with nuclear oil and gas stimulation explosions and nuclear generating plants, regulating uranium mill tailings piles, and doing radon gas level studies in both mines and uranium communities. On January 16, 1968, the Department assumed the regulatory authority over virtually all radioactive materials used within Colorado following signing of a formal agreement with the Atomic Energy Commission (AEC).

Progress also was noted in other areas of public health. In 1960, the Department started a streptococcus detection program, which was to become one of the nation's most successful public health programs and a model for the entire country. Its objective, the primary prevention of rheumatic fever and rheumatic heart disease, is being accomplished. In 1959, Colorado recorded 256 cases of rheumatic fever. In 1968, the number of recorded cases dropped to an all-time low of 45, an 82.5 per cent reduction in the nine-year period. The State Health Department processed a record 230,942 strep cultures in 1970, 16.5 per cent of which were positive.

Late in 1961, Colorado participated in field trials for both the killed and the live attenuated measles vaccines, the first step in a vigorous campaign public health officials were to wage against the serious childhood disease. In the first half of 1969, only 114 cases of measles were recorded in the state, a 76 per cent reduction from the 469 recorded for the comparable period of 1968.

Air Pollution Grows

With the growing urbanization of Colorado's population, the crisp, clear air which once lured thousands of health seekers to the state started to deteriorate. In 1962, the State Health Department conducted the first statewide study to determine the nature and extent of air pollution in Colorado. The following year, an air pollution control section was established in the Department and started a comprehensive air monitoring and testing program. The State Board of Health, designated by Governor John A. Love as the official state air pollution control agency for implementation of the Federal Clean Air Act, took the lead in Colorado's campaign for clean air with the drafting and approval of a model air pollution ordinance. On July 7, 1964, the Department placed in operation a mobile air quality laboratory capable of identifying and measuring all smog-producing chemicals in the air. A measure passed by the 1964 session of the legislature called for the testing of particulates, haze and gases, and required the Health Department to notify those communities which failed to meet standards. But it delegated no enforcement power.

In its report to the 1965 session of the legislature, the Department pointed out that it had the technical equipment and knowledge to assess air pollution but could do virtually nothing about the problem without additional legislation. It recommended eight specific measures to conserve Colorado's vital air resource, including the establishment of emission standards and the abatement of air pollution nuisances anywhere in the state. A year later, the 1966 General Assembly

enacted an air pollution control act, establishing ambient air standards, giving the state and local air pollution control authorities concurrent jurisdiction over violators, and creating an air pollution variance board to hear and rule on requests for variances, or exceptions, from the law. In the next three years, the State Board of Health approved the designation of air pollution control basins in the metropolitan Denver area, El Paso County, Pueblo County, Mesa County, Larimer-Weld Counties, and Garfield County.

In 1970, the state legislature passed a new air pollution control act, creating a nine-member State Air Pollution Control Commission vested with the authority to set ambient and emission standards. The Variance Board was retained, but the Commission was given certain veto powers over it. Under the act, air pollution enforcement authority was lodged in the State Health Department.

Improvements in 1960s

The 1960's were a period of acceleration, turbulent change and ever-expanding concerns for public health in Colorado. The concept of public health has broadened from frontier concern with the mineral springs to embrace such space-age subjects as radiation, nutrition, arthropods, accident prevention, noise pollution, alcoholism and drug dependence, and pesticides. Many of the communicable diseases of former years have been brought under control through the organized services of public health, new vaccines, better sanitation practices and greater public sophistication about disease prevention.

The vital statistics no longer reflect a bleak picture for Colorado. In 1967, for example, the state's infant death rate was 22.9 per 1,000 live births, compared with a national rate of 22.1, and the maternal death rate was 25.6, considerably lower than the national rate of 28.0. The last death from typhoid fever in the state occurred in 1958; from diphtheria in 1963, and before that, in 1959; from smallpox in 1948. No smallpox has been reported in Colorado since 1948, when there were two cases, including the last smallpox fatality. And in the last 30 years, there's been a 60 per cent decrease in the death rate from influenza and pneumonia. Increased attention is being given to the chronic illnesses, particularly heart disease and cancer. New concepts are being applied to the total problem of mental illness. Programs for the prevention of mental retardation such as the statewide phenylketonuria screening program, are being accelerated. The fight against environmental pollution is being waged vigorously on all fronts, although victory awaits technological advances, increased public awareness and better corporate citizenship. Emergencies still occur to test public health, and invariably it measures up. There are two recent classic examples.

When devasting floods inundated the Arkansas and Platte River valleys in 1965, public health was on the job immediately, testing and chlorinating water supplies, making sure that flood-damaged food, drug and beverage supplies were disposed of, administering typhoid shots, supervising rodent and insect control and the disposition of dead animals, providing detailed information for flood victims on personal health protective measures, determining where aerial insecticide spraying should be done to help control a build-up of mosquitoes and checking flooded warehouses for hazardous contents. Governor John A. Love singled out the State Health Department for praise in that emergency and wrote Dr. Cleere that his "outstanding leadership gives me great pride in the Department of Public Health."

On July 3, 1968, a diagnosis of bubonic plague was made in a six-year-old Denver girl, and state health officials, in cooperation with Denver and federal health officials, promptly started an epidemiological investigation. The plague was traced quickly to tree squirrels, which were dying in great numbers in a heavily populated area of northeast Denver. By July 9, a full-scale field control program was in operation with squirrel traps and DDT bait boxes placed throughout the infected area. Laboratory technicians worked around the clock to keep up with the analyses on dead squirrels. By July 19, the outbreak of plague among squirrels was contained. The count at that time was 47 squirrels positive for plague out of approximately 200 specimens. Because of prompt action by health officials, no additional human cases occurred.

The establishment of the health insurance benefits, or Medicare, program under Title 18 of the Social Security Act has brought important new responsibilities to the State Health Department. The Department is charged with certifying whether hospitals, nursing homes and other long-term care facilities, home health agencies and private laboratories are eligible for payment

for care of the elderly under the Social Security hospital insurance and supplementary medical insurance trust fund. The Department's Hospital and Nursing Home staff conducts regular surveys of all of Colorado's 87 hospitals and 184 nursing homes in connection with its regular licensure program. New standards for all health facilities, plus regular Health Department-sponsored training courses, are insuring a high quality of care for patients.

When the state government was reorganized in 1968, the General Assembly recognized the vital importance of public health to the citizenry by reestablishing the Colorado Department of Health as one of the 17 departments of the state government. The nine-member Board of Health was continued as the rule-making, advisory, policy-forming, appellate body, and the Division of Administration as the administrative and executive branch of the Department. After struggling for years with a skeleton crew, the State Health Department today has a well-qualified staff of 375 employees, representing 143 different job classifications. Specialists provide expertise in dozens of areas. Among them are physicians; dentists; nurses; dental hygienists; accountants, health educators; an attorney; a journalist; radiation physicists; industrial hygienists; statisticians; social workers; a systems analyst; nutritionists; an entomologist; physical, occupational and speech therapists; audiologists; sanitarians; sanitary engineers; an architect; a medical records librarian; virologists; microbiologists and chemists.

Public health nursing, frequently referred to as the "backbone" of public health, is well established. A total of 697 professional public health nurses are employed in Colorado. The ratio of public health nurses to patients is the most favorable in the nation, 29.4 nurses per 100,000 population compared with a national average of 18.8.

Public health has achieved outstanding progress in Colorado, but it cannot stand still. The services of the 13 organized local health departments reach only 22 counties in the state. The 41 remaining counties, for all practical purposes, continue to operate under the original 1876 system of health legislation. For many sparsely populated areas and for communities which have exhausted their tax-levying capabilities, the provision of adequate health services seems virtually impossible. Methods must be found to equalize health services and make them available to every resident of and visitor to Colorado, which has become a year-round playground for the nation.

References

1. Bliven, Bruce: Colorado — Health Resort?, The New Republic, July 11, 1934.
2. Bluemel, Elinor: *Florence Sabin — Colorado Woman of the Century,* University of Colorado Press, Boulder, Colorado, 1959.
3. Buck, Dr. Carl E.: Colorado Public Health Needs and How To Meet Them, report of a study made by the American Public Health Association, November, 1945-March, 1946.
4. Chapman, Edward N., M.D.: Sewage Disposal — A Major Public Health Problem in Colorado, Colorado Medicine, October, 1934.
5. Colorado Department of Health, News Releases, 1964-1969.
6. Colorado Health News, Colorado Department of Health, 1948-1967.
7. Colorado's Health, Colorado Department of Health, 1967-1969.
8. Colorado Tuberculosis Association, *Building the Future on the Past,* March, 1948.
9. Denver Post, September 1, 1937.
10. Elder, Dr. Charles S.: Medicine, Public Health, and Hospitals, a chapter in *Colorado and Its People* edited by LeRoy R. Hafen, Volume II, Lewis Historical Publishing Co., Inc., New York City, 1948.
11. Harvey, Patricia Hope: *Historical Review of Public Health Nursing in the State of Colorado,* University of Colorado, 1955.
12. Jones, Billy M.: *Health Seekers in the Southwest, 1817-1900,* University of Oklahoma Press, 1967.
13. Lull, Dr. Lynn J.: A Survey of Colorado Health Problems and Facilities, 1940.
14. Maisel, Albert Q.: The Unsuspected Dynamo, circa 1947.
15. Mitchell, Dr. William C.: Diphtheria in Colorado, An Historical Sketch, circa 1935.
16. Mitchell, Dr. William C.: Early Examination of Water Supply in Colorado, reprinted from Colorado Medicine, April, 1926.
17. Pyle, George S.: Public Health Programs in Colorado, circa 1946.
18. Sabin, Florence R., M.D.: The People Win for Public Health in Colorado, 1947.
19. Sewall, Henry: *The Oxford Medicine Advance Pages,* Vol. I, Part I, Oxford University Press, New York City, 1918.
20. State Board of Health Minutes and Reports, 1876-1969.
21. Waller, Dr. C. E.: Health Survey of Colorado, 1930.

AL AYERS
1971

The Changing Face of Medical Practice

Clyde Stanfield, MD*

HOW DOES one attain an historical perspective – in high fidelity? Reconstructing the physician's role retrospectively one hundred years later is fraught with all the pitfalls of hearsay distortion, half-truths, wishful thinking, and myths which plague historians in any dimension – traps which engulf even today's newsman writing about yesterday's events.

Preceding papers commemorating this Centennial year of the Colorado Medical Society recount from several views the hundred-year stream of events and their flavor – facets which range from Harvey Sethman's vignettes of past Society Presidents to accounts of the evolution of Colorado's University Medical Center, the state's public health services, and occupational medicine. This paper seeks to over-view the impact of that hundred years on private medical practice.

Sixteen Colorado physicians convened in the District Court Room in Denver September 19, 1871, to create the Colorado [Territorial] Medical Society as the territorial successor to the (deceased) Jefferson Medical Society [established June 2, 1860], and the then apparently moribund Denver Medical Association [established April 4, 1871].[1] After the 1871 CMS "Constitutional Convention" September 19, comprised of morning and afternoon sessions, a dinner at Ford's restaurant evoked toasts to the (1) A.M.A., (2) C.M.S., (3) The Ladies, and (4) Legitimate Medicine.

Meanwhile, across the Atlantic, Queen Victoria's unhappy visage presided over Britain's golden years, Louis XV basked in the attentions of Mme. Pompadour and Mme. DuBarry, as he was fond of saying, *"Apres moi, le deluge"* ("After me, the deluge"). U.S. President was Ulysses S. Grant. Colorado's official census in 1870 was 39,865; Denver's 4,759. Earlier in 1871, Denver built its first high school, on Arapahoe Street between 17th and 18th; by December, its first horse car traversed West Denver to 27th and Curtis. Ten years would elapse before the 1881 Colorado Act would be enacted "to protect the public health and regulate the practice of medicine." In 1876, the territorial Colorado Medical Society would change its name to the Colorado State Medical Society.

The Physicians (Now, "Purveyors")

First physician "to enter our part of the West" was Dr. John H. Robinson, who accompanied Lieut. Zebulon M. Pike's 1806-7 expedition, and was expected to perform necessary medical services in repayment for "accommodations" on the trip. In 1820, Dr. Edwin James and two companions of Major Stephen H. Long's expedition ascended Pike's Peak as "the first white men to reach the summit."[1] By 1871, there were more than a score of physicians practicing (more or less) in the Denver area; ten of the "regulars" met in Dr. Buckingham's office in Denver to form the Denver Medical Association and they planned for a CMS constitutional convention the succeeding September.[1]

Exceedingly diverse in temperament, training and competence, the territorial physicians were molded far more by circumstance and pragmatism than by any of the prodromata of the standardization and accreditation which codify today's professionals. Some found themselves doctors out of self-declaration and environmental needs – their needs or others'! Medical practice was a poorly paid and not infrequently a part-time involvement, either as humanistic service or for one's own sustenance while seeking better hoped-for remuneration through panning gold,

*The author, a psychiatrist, is a Past President of the Denver Medical Society, a Past Chairman of its Board of Trustees, and Vice Chairman of the CMS Centennial Committee.

acquiring real estate or business, often while pursuing the cure of tuberculosis which brought them West. Regarding the latter, P. T. Barnum observed that Colorado people are "disappointed": "Two-thirds of them came here to die, and they can't do it. The wonderful air brings them back from the verge of the tomb."

Yet amid all the personality diversity of the pioneer physicians ran common threads of (a) tough individualism, and (b) inherent humanism (sometimes covert) – without which their professional role would have been unthinkable. It is upon their autonomy as individualists that the intervening hundred years of sociologic change have wrought the most dramatic reversal. Their humanism has only more recently been eroded by governmentally subsidized health care. Today's "individual" [solo] practitioner is increasingly vulnerable among his peers and consumer groups as they infer him to be inefficient, lacking in multidiscipline resources, and somehow invidiously alien from the vaunted "therapeutic team." Should today's doctor have a non-practice income or a political commitment, he is likely to seem ethically tarnished by conflict of interest or in defiance of the manpower shortage of physicians. Collaterally, the very humanism which likely led our practitioners to choose medicine over manufacturing or nuclear physics, is being embraced progressively by the Welfare State which underwrites and supervises care of the disadvantaged and handicapped.

Where once the doctor's personality and individual mode of practice separated him from his peers, he is more likely now to be categorized into provincial domain by the proliferation of specialization and socio-economic character of practice.

In short, the past century has reversed the doctor's motivation and professional posture. He is increasingly a servant of his society, no longer an autonomous purveyor of services; he is less an individual agent now and more a team-participant – the better to assure utility, quality-equalization, and broader delivery to mass demand.

Denver's skyline circa 1873, looking northeast from approximately the present location of Mile High Stadium (until recently, known as Bears Stadium). The old Arapahoe School (center background) was then the young city's tallest building, just beyond the houses in foreground is the South Platte River with Cherry Creek entering it at the extreme right and, left center with the heavy chimney, Denver's first water plant. (Denver Public Library Western Collection)

The Patients (Now, "Consumers")

Today's patient is different too – in motivation, expectations and personal responsibility. Pioneering Coloradoans banded together in defense against common hazards, but jealously guarded their autonomy and the predominately non-urban roots of their individual enterprise. Their first recourse to adversity was work – with individual risk-taking. Considerably lower in priority was recourse to the aid of neighbors, government, and the physician-healer. In truth, kitchen-table surgery and home deliveries posed less peril (both psychologically and bacteriologically) than did the last-resort specter of hospitalization, even where geographically practical.

How stark is the contrast of today! Government, militant consumer-groups, and now the AMA hold comprehensive health care to be the citizen's right, not his earned privilege. Time's pendulum has inverted the responsibility for health care, shifting it from individual obligation to society's paternalism. Riesman's "tradition-directed" and "inner-directed" man has given way to an "other-directed" stance, wherein he relies upon collective paternalism for his own security in adversity, ill-health, and disadvantaged sociologic status or age.

Where once the physician's fee-for-service was paid by the patient (in pelts, labor, gold dust or coin), there evolved the "third party payor" – originally governmental or charitable agency, or voluntary insurance carrier. Most revolutionary of all is today's consumer-group demand for prepaid comprehensive health care by modalities of delivery ranging from community-wide or group capitation for salaried physicians to voluntary plans to prepay the private physician.

In all, the 1870 physician's roll-top desk and his nurse-assistant would now be engulfed by the paper blizzard of service vouchers and mandatory records.

Technology ("Services")

Proliferating scientific knowledge and applied technology have been astronomic in the century – therapeutic effectiveness has compensated for much of the depersonalization which concurrently has demoted the *art* of medicine. Three months after Robert Koch's classic essay,

So what's a mere century? Even in 1870, when this picture was taken on Denver's Fifteenth Street between Larimer and Lawrence, "Drug Stores" advertised and sold multiple lines of merchandise, a practice many 1970 moderns believe to have developed only in recent years. (Denver Public Library Western Collection)

Dr. Charles Denison read his paper at the Pueblo CMS annual convention (June, 1882) entitled "Contagiousness of Phthisis." Milestones of antisepsis, anesthesia, diagnostic roentgenology, immunology, chemotherapy, genetics, ecology, and preventive medicine – to name a few – have created impacts difficult today to isolate and measure because of their pervasive influence on accepted clinical practice.

Ahead are new frontiers of medicine demarcated by technical exploitation of general systems theory, computerized data handling, and broadening methods for delivery and public education in comprehensive health care. Spectacular indeed has been the shift of base and power from the physician's office and personal service to institutions as the center. The complexity of technical services, the press for systematic administration and mass-distribution of care, and the inherent affinity of bureaucrats for institutional and corporate implementing arms have all compounded to nurture (and subsidize) medical schools, hospitals, and corporate clinics. This thrust has collaterally disadvantaged the solo practitioner as he is denied the corporate and salaried tax shelters, government *largesse,* and even a favorable public relations image.

At this writing, a junctional development is evolving between the limitations of the lone practitioner and the enormous cost of institutional total care. Proliferating multidiscipline group-practice clinics and full service outpatient facilities seem to promise more efficient exploitation of the physician's talents and time, while minimizing recourse to high cost institutional "complete" care – by providing alternative preventive, outpatient and infirmary facilities. By giving up his autonomy in an individual-service role, the physician's talents may thus be less diluted by administrative and technical tasks as these can be delegated to paramedical ancillaries.

New techniques for mass data (including history) elicitation, storage, and retrieval, diagnostic multiphasic screening, and mass lay-education offer promise of more effective preventive medicine and earlier disease detection without exorbitant costs. Whether automation and multiphasic screening will in fact prove as productive of increased clinical acumen when compared to the alert clinician, they nonetheless will challenge the too-busy or too-casual practitioner. Disease detection by occupational health programs and by neighborhood health centers for the indigent will clearly serve to bring improved health care to many segments of our society which earlier have been situationally deprived or passively non-availing.

Fragmentation of "Organized Medicine"

Where once the physician's allegiance was to his patient and his own economic survival, the century brought at first a regional clotting together of physicians as "organized medicine" only to be followed by progressive splintering of their unity by the burgeoning of speciality practice, hospital staff affiliations, and more recently the socioeconomic modalities of practice (e.g., individual, group, salaried, governmental, academic). If a single unitary "organized medicine" is to survive the next century, it will of necessity have to justify its existence as an indispensably broad umbrella over highly diffused and seemingly contradictory subcultures. It will need to prove its utility and value as it asserts itself as a single voice for the health care profession (if not for its paramedical kin) while deferring much of its earlier role of scientific education, legislative representation, and public interaction to the special interest and leverage of its sub-groups.

As it enters its second century in Colorado, our state medical society may well be honed sharper, changed definitively to serve the new complexion of medicine.

The Future Priorities

Could we look back from the year 2000, perhaps the starkest contrast in medical practice *via* our first century would prove to be the shift in *objectives* of care, even more than the spectacular advances in technology and facilities. A mere schematic listing of areas undergirds this futuristic assessment:

(a) Primary emphasis on broad dissemination of health care as a social "right" [*cf.*, patient-responsibility for purchasable commodity];

(b) Mounting emphasis on health maintenance and disease-prevention [*cf.*, crisis utilization after injury or during illness];

(c) Increasing anonymity of the physician (technician) member of the health care team [*vs.*, earlier autonomy and personalized responsibility of the one practitioner/adviser/friend/neighbor];

(d) Remuneration from third party funds elicited by patient-capitation [*cf.*, patient to doctor fee-for-service];

(e) Broadening delegation of tasks to administrative and paramedical technicians, resulting in dilution of physician responsibility and distancing of patient/doctor interaction;

(f) Proliferating complexity of technology and its data by logarithmic progression [*cf.*, the pioneer physician's simplistic pragmatism, his trial-and-error search for the art of the possible]; and

(g) Ever-dilating horizons of health care roles to embrace human ecology, the humanist's "good" [*vs.*, individual free agency in matters of reproduction, prolongation of life, exploitation of environmental resources].

For Better or Worse?

The question is moot. Change, like history and time itself, is not to be halted. "Progress" exacts its price from those of us inclined to revere tradition, to distrust change as "reckless" innovation — *i.e.*, those of us who've grown accustomed to the Way It Is (or Was!). But the torch passes nonetheless to younger hands, even as we record this chapter of our first century.

REFERENCES

[1] Lemen, Lewis E. (M.D., Denver), pp. 66-73 in Ch. XXXI of *Semi-Centennial History of the State of Colorado*, (Smiley, Jerome C., Editor) Lewis Publishing Company, New York, 1913.

[2] *Rocky Mountain News*, September 20, 1871, pp. 1 and 2.

[3] Elder, Charles S. (M.D., Denver), Ch. XIV, pp. 387-406; *Colorado and Its People*, (Hafen, LeRoy R., Editor) Vol. II, Lewis Hist. Publishing Company, New York, 1948.

[4] Perkin, Robert L. (Denver), pp. 347-48, *The First Hundred Years*, Doubleday and Company, Inc., 1959.

[5] Allen, Henly W. (M.D., Boulder), *Early Days in the Practice of Medicine in Colorado*.

[6] Riesman, David, et al; *The Lonely Crowd*, Yale University Press, 1950.

[7] Middleton, Wm. S. (M.D., Madison, Wisc.), "Medicine in the United States: The Road from Yesterday to Today," *Journal-Lancet* 86: 523-29, November, 1966.

[8] Pruitt, Raymond D. (M.D., Houston, Texas), pp. 32-40; "Implications of Evolution in Medical Care for the Physician of Tomorrow." *Journal-Lancet* 86: pp. 546-50, November, 1966.

[9] Magraw, Richard M. (M.D.), *Ferment in Medicine*, W. B. Saunders Co., Philadelphia, 1966.

[10] Galdston, Iago (M.D.), *Medicine in Transition*, University of Chicago Press, 1965.

[11] Greenberg, Selig, *The Troubled Calling*, McMillan, 1965.

ROCKY MOUNTAIN MEDICAL JOURNAL

Volume LXVIII, January to December, 1971

Official Journal of

The Colorado Medical Society
The Montana Medical Association
The Nevada State Medical Association
The New Mexico Medical Society
The Utah State Medical Association
The Wyoming State Medical Society

The Rocky Mountain Medical Conference

Publication Office: 1809 E. 18th Ave., Denver, Colorado 80218
Telephone: (303) 399-1222

EDITORIAL BOARD

DOUGLAS W. MACOMBER, MD, *Scientific Editor for COLORADO and Chairman of Editorial Board*
1800 High Street, Denver 80218 ..... (303) 333-2313

CARL H. McLAUTHLIN, MD, *Assistant Scientific Editor for COLORADO*
510 Republic Building, Denver 80202 ..... (303) 266-0201

GERALD A. DIETTERT, MD, *Scientific Editor for MONTANA*
P. O. Box 1307, Missoula 59801 ..... (406) 549-6181

L. RUSSELL HEGLAND, *Executive Secretary, Montana Medical Association and Associate Editor for MONTANA*
P. O. Box 1692, Billings 59103 ..... (406) 252-6673

HARRY J. McKINNON, MD, *Scientific Editor for NEVADA*
3196 Maryland Pkwy S., Las Vegas 89109 ..... (702) 735-9251

WESLEY W. HALL, MD, *Assistant Scientific Editor for NEVADA*
607 North Arlington Avenue, Reno 89503 ..... (702) 323-5181

NELSON B. NEFF, *Executive Director, Nevada State Medical Association and Associate Editor for NEVADA*
3660 Baker Lane, Reno 89502 ..... (702) 323-6788

MARCUS J. SMITH, MD, *Scientific Editor for NEW MEXICO*
Coronado Building, Santa Fe 87501 ..... (505) 983-3357

WILLIAM S. CURRAN, MD, *Assistant Scientific Editor for NEW MEXICO*
920 Stanford NE, Albuquerque 87106 ..... (505) 243-2321

RALPH R. MARSHALL, *Executive Director, New Mexico Medical Society and Associate Editor for NEW MEXICO*
3010 Monte Vista Blvd. NE, Albuquerque 87106 ..... (505) 265-8494

ALAN E. LINDSAY, MD, *Scientific Editor for UTAH*
699 East South Temple, Salt Lake City 84102 ..... (801) 364-5673

HOYT W. BREWSTER, *Executive Director, Utah State Medical Association and Associate Editor for UTAH*
42 South Fifth East Street, Salt Lake City 84102 ..... (801) 355-7477

FRANCIS A. BARRETT, MD, *Scientific Editor for WYOMING*
1616 East 19th Street, Cheyenne 82001 ..... (307) 632-9231

ROBERT SMITH, *Executive Secretary, Woming State Medical Society and Associate Editor for WYOMING*
P. O. Box 1387, Cheyenne 82001 ..... (307) 634-7305

DONALD G. DERRY, *Executive Director, Colorado Medical Society and Managing Editor, Rocky Mountain Medical Journal*
1809 East 18th Avenue, Denver 80218 ..... (303) 399-1222

PAULINE I. WOODWORTH, *Editorial Assistant*

AUTHOR INDEX, VOLUME LXVIII

Anderson, L. Bruce, Jr., MD, Billings, Montana; Pollen, Mold and Plant Survey, 1970, 44 (May)

Babey, Andrew M., MD, Las Cruces, New Mexico; Potpourri, 57 (March); 52 (May); 49 (June); 44 (Sept.); 37 (Dec.)

Bagby, J. R., Jr., PhD, Fort Collins, Colorado; Pesticide Poisonings in Rural Colorado, 29 (April)

Bailey, Colin, MD, Gillette, Wyoming; The Missing Intrauterine Device in Pregnancy, 32 (July)

Barber, Edgar W., MD, Denver, Colorado; Doctor! When Should you Retire?, 32 (Oct.)

Barmeyer, George H., MD, Missoula, Montana; Magic, Science, and Head Circumference, 42 (May)

Barr, Robert J., Denver, Colorado; Colorado Tick Fever, 60 (Feb.)

Bartecchi, Carl E., MD, Pueblo, Colorado; Cardiogenic Shock, 51 (Nov.)

Bennahum, David A., MD, Albuquerque, New Mexico; Tattoos of Heroin Addicts in New Mexico, 63 (Sept.)

Beresford, H. Richard, MD, JD, Denver, Colorado; Organ Transplantation and the Law, 47 (April)

Billings, Edward G., MD, Denver, Colorado; Prophylactic Lithium Therapy, 25 (April)

Bond, M. B., MD, Denver, Colorado; Occupational Medical Services for Small Employee Units, 31 (Nov.)

Boyd, Harry R., MD, Denver, Colorado; Psychosurgical Treatment of Neurosis, 25 (August)

Bralliar, Floyd, MD, Denver, Colorado; Dupuytren's Contracture, 49 (Oct.)

Breckinridge, John C., Denver, Colorado; Colorado Tick Fever, 60 (Feb.)

Brettell, Herbert R., MD, Denver, Colorado; Anticoagulants in Acute Coronary Disease, 55 (Oct.)

Broadbent, Thomas Ray, MD, Salt Lake City, Utah; Hypospadias—One Stage Repair, 35 (Jan.); Hyposadias—Two Stage Repair, 37 (Jan.)

Browder, J. Albert, MD, Albuquerque, New Mexico; Hearing Loss in Preschool New Mexico Children, 49 (Sept.); Hearing Loss Caused by Prenatal Rubella, 43 (Dec.)

Buckman, Maire T., MD, Albuquerque, New Mexico; Galactorrhea—A Clinical Approach, 27 (Nov.)

Buker, Richard S., Jr., MD, Chester, Montana; Abdominal Bruit Associated With Bacillary Dysentery, 23 (May)

Butterfield, Joseph, MD, Denver, Colorado; Neonatal Infection Due to Group B Streptococcus, 48 (Feb.)

Bynum, Gaither, Albuquerque, New Mexico; Rural Health Care in New Mexieo, 53 (Sept.)

Campbell, Horace E., MD, Denver, Colorado; Freud in the American Scene, 33 (June)

Cardelli, Robert M., MD, Colorado Springs, Colorado; Carcinoma of the Cecum, 29 (June)

Castle, C. Hilmon, MD, Salt Lake City, Utah; Cardiopulmonary Resuscitation Training, 11 (Jan.); Department of Community and Family Medicine, 43 (June)

Castleton, Kenneth B., MD, Salt Lake City, Utah; Recent Trends in Medical Education, 19 (July)

Cholas, G., DVM, Fort Collins, Colorado; Pesticide Poisonings in Rural Colorado, 29 (April)

Conde, Richard L., MD, Colorado Springs, Colorado; Electroshock, Effete or Essential?, 12 (June)

Cowan, Leland B., MD, Salt Lake City, Utah; Melanoma in Utah, 29 (Jan.)

Creasman, William T., MD, Durham, North Carolina; Management of Premalignant Cervical Disease, 27 (August)

Curb, J. David, Albuquerque, New Mexico; Medical Problems Among Rural Hippies, 37 (Sept.)

Curran, William S., MD, Albuquerque, New Mexico; The Fragmented Patient, (Medical Conference from the University of New Mexico School of Medicine), 43 (March)

Davies, Hywel, MD, Denver, Colorado; Compromised Renal Function Secondary to Spontaneous Retroperitoneal Hemorrhage, 36 (Feb.)

Davison, Steven, Denver, Colorado; Abortion and Euthanasia: A Reply, 40 (Feb.)

Delaney, James J., MD, Denver, Colorado; Rubella Vaccination in the Puerperium, 46 (Oct.)

Dickey, Lawrence D., MD, Fort Collins, Colorado; Ecologic Illness, 23 (Oct.)

Dirks, David, Denver, Colorado; Tracheal Support in the Treatment of Emphysema, 19 (August)

Dohner, V. Alton, MD, Denver, Colorado; Mood Altering Agent Use in America, 27 (Feb.); Iatrogenic Pulmonary Edema, 32 (Dec.)

Dorney, Edward R., MD, Denver, Colorado; Premature Atrial Contractions, 60 (March)

Draney, Donald, MD, Alamagordo, New Mexico; Postdialysis Convulsions, 41 (Dec.)

Earnest, Michael P., Fort Collins, Colorado; Colorado Tick Fever, 60 (Feb.)

Elliott, James H., MD, Nashville, Tennessee; Fractures of the Orbital Floor, 15 (July)

Engel, Tibor, MD, Denver, Colorado; Laparoscopy in Gynecology, 11 (August)

Eriekson, Donald L., M.Ed., MPH, Cheyenne, Wyoming; A System for Continuing Medical Education, 43 (Feb.)

Favara, Blaise E., MD, Denver, Colorado; Neonatal Infection Due to Group B Streptococcus, 48 (Feb.)

Fine, Louis L., MD, Denver, Colorado; The Child Health Associate, 25 (Nov.)

Fink, Donald W., MD, Denver, Colorado; Pulmonary Nocardiosis, 50 (March)

Fitzpatrick, W. K., MD, Salt Lake City, Utah; Medical Memorabilia—Utah's First Medical Sehool, 21 (Jan.); Preliminary Evaluation of Rocky Mountain States Cooperative Tumor Registry, 39 (April)

Ford, Clynn R., MD, Salt Lake City, Utah; Spontaneous Abdominal Aorto-vena Caval Fistula, 23 (Jan.)

Franciosi, Ralph A., MD, Denver, Colorado; Neonatal Infection Due to Group B Streptococcus, 48 (Feb.)

Francy, D. Bruce, Fort Collins, Colorado; Colorado Tick Fever, 60 (Feb.)

Freed, Charles G., MD, Denver, Colorado; Psychosurgical Treatment of Neurosis, 25 (August)

Friedenberg, Ralph C., MD, Albuquerque, New Mexico; Propranolol: An Adjunct to Definitive Treatment of Thyrotoxicosis, 41 (Sept.)

Gārlett, E. Lee, MD, Denver, Colorado; Herpes Simplex Encephalitis, 22 (August)

Greenhouse, Arnold H., MD, Albuquerque, New Mexico; Anesthesia in the Parkinsonian on Levo-Dopa, 60 (Nov.)

Grizzle, Claude O., MD, Cheyenne, Wyoming; Hansen's Disease in a Peripheral Nerve, 40 (July)

Guillen, Jorge, MD, Denver, Colorado; Compromised Renal Function Secondary to Spontaneous Retroperitoneal Hemorrhage, 36 (Feb.)

Gutch, C. F., MD, Salt Lake City, Utah; Home Hemodialysis in the Rocky Mountain Region, 57 (Nov.)

Haller, James G., MD, Cheyenne, Wyoming; Combating Drug Abuse in Wyoming, 43 (April)

Hill, George J. II, MD, Denver, Colorado; Pre-premedical Experience for High School Students, 9 (June)

Hodgin, Ulton G. Jr., MD, Albuquerque, New Mexico; Acute Hypokalemia Occurring During the Treatment of Diabetic Aeidosis, 46 (Sept.)

Holmes, J. H., MD, Denver, Colorado; Home Hemodialysis in the Rocky Mountain Region, 57 (Nov.)

Hoppel, Gary, Billings, Montana; Pollen, Mold and Plant Survey, 1970, 44 (May)

Horner, Robert L., MD, Denver, Colorado; Dupuytren's Contracture, 49 (Oct.)

Howe, John J., MD, Pueblo, Colorado; Cardiogenic Shock, 51 (Nov.)

Howell, Ira L., MD, Denver, Colorado; Hypnosis—Magic or Quackery?, 31 (August)

Jahsman, David P., MD, Ogden, Utah; Bacterial Endocarditis on a Prosthetic Aortic Valve, 29 (Oct.)

Jarrett, James E., MD, Missoula, Montana; Lethal Midline Granuloma, 40 (Oct.)

Johnson, Joyce, MD, Salt Lake City, Utah; Cardiopulmonary Resuscitation Training, 11 (Jan.)

Jung, August L., MD, Salt Lake City, Utah; Newborn Intensive Care in the Intermountain West, 16 (Jan.)

Kane, Robert, MD, Salt Lake City, Utah; Department of Community and Family Medicine, 43 (June)

Karel, James L, MD, Denver, Colorado; Pulmonary Nocardiosis, 50 (March)

King, Spencer B. III, MD, Denver, Colorado; Premature Atrial Contractions, 60 (March)

Kjeldsberg, Carl R., MD, Denver, Colorado; Herpes Simplex Encephalitis, 22 (August); Lupus Erythematosus, 58 (Oct.)

Kolff, W. J., MD, Salt Lake City, Utah; Home Hemodialysis in the Rocky Mountain Region, 57 (Nov.)

Kraner, James C., MD, Albuquerque, New Mexico; Primary Pulmonary Histiocytosis X in a Female Patient, 59 (Sept.)

Kukral, Albert J., MD, Denver, Colorado; Thymectomy in Myasthenia Gravis, 37 (June)

Lamm, Richard D., Denver, Colorado; Abortion and Euthanasia: A Reply, 40 (Feb.)

Lee, Richard V., MD, Chester, Montana; Abdominal Bruit Associated with Bacillary Dysentery, 23 (May)

Lehman, Roger H., MD, Milwaukee, Wisconsin; Lethal Midline Granuloma, 40 (Oct.)

Lenz, Theodore R., MD, Pueblo, Colorado; Interposition of the Colon Between the Liver and Diaphragm, 38 (Feb.)

Lewis, Walter J. III, MD, Missoula, Montana; Correlation of Coronary Arteriograms with Master's Test and Treadmill Test, 30 (May)

Lindsay, Alan E., MD, Salt Lake City, Utah; What's the Rhythm?, 40 (Jan.); 39 (Dec.)

Looby, Wililam E., MD, Pueblo, Colorado; General Hospital Services of the Colorado State Hospital, 63 (Oct.)

Loughry, Richard W., MD, Cheyenne, Wyoming; Hemangiomas of the Esophagus, 37 (July)

Macintyre, Elizabeth H., MD, Denver, Colorado; Herpes Simplex Encephalitis, 22 (August)

Mack, E. W., MD, Reno, Nevada; Surgery of the Cervical Syndromes, 27 (March); Neurologic Injury, 32 (March)

MacLean, Richard H., MD, Sheridan, Wyoming; Gastrointestinal Malignant Melanoma, 42 (July)

MacQuigg, Rodger E., MD, Albuquerque, New Mexico; Primary Pulmonary Histiocytosis X in a Female Patient, 59 (Sept.)

Mollohan, Cecil S., Denver, Colorado; Colorado Tick Fever, 60 (Feb.)

Morelli, R. J., MD, Reno, Nevada; Surgery of the Cervical Syndromes, 27 (March)

Morgan, Loran B., MD, Torrington, Wyoming; A New Therapeutic Scleral Lens, 26 (July)

Moslander, Virginia, Salt Lake City, Utah; Melanoma in Utah, 29 (Jan.)

Mounce, L., BS, Fort Collins, Colorado; Pesticide Poisonings in Rural Colorado, 29 (April)

Muggia, Albert L., MD, Albuquerque, New Mexico; Upper Gastrointestinal Bleeding Among Navajo Indians, 29 (Sept.); Diseases Among the Navajo Indians, 39 (Nov.)

Newby, James P., MD, Denver, Colorado; Tracheal Support in the Treatment of Emphysema, 19 (August)

Nims, Marshall G., MD, Denver, Colorado; Pulmonary Nocardiosis, 50 (March)

Omohundro, John M. III, MD, Sheridan, Wyoming; Fractures of the Orbital Floor, 15 (July)

Osberg, Franklin G., MD, Pueblo, Colorado; The Addicted Physician, 24 (June)

Pappas, George, MD, Denver, Colorado; Compromised Renal Function Secondary to Spontaneous Retroperitoneal Hemorrhage, 36 (Feb.)

Petersen, Drew M., MD, Ogden, Utah; The Pros and Cons of National Health Insurance, 55 (Feb.)

Pingerra, W. F., MD, Denver, Colorado; Home Hemodialysis in the Rocky Mountain Region, 57 (Nov.)

Pittman, Joseph G., MD, San Francisco, California; Multiple Hypothalamic Disorders Produced by a Suprasellar Germinoma, 23 (March)

Poucel, Jean Georges, MD, Denver, Colorado; Ascending Aortic Aneurysm, 29 (Dec.)

Rainer, W. Gerald, MD, Denver, Colorado; Tracheal Support in the Treatment of Emphysema, 19 (August); Ascending Aortic Aneurysm, 29 (Dec.)

Ratzer, Erick R., MD, Denver, Colorado; Chemodectomas of the Ear, (Tumor Conference from University of Colorado), 63 (Feb.)

Reed, Margaret, MD, Sheridan, Wyoming; Psychopharmacology in the Geriatrie Patient, 44 (July)

Reichman, O. Howard, MD, Salt Lake City, Utah; Excision of Spinal Cord Arteriovenous Malformation, 21 (June)

Reid, Robert A., MD, Denver, Colorado; Laparoscopy in Gynecology, 11 (August)

Reynolds, W. A., MD, Missoula, Montana; Dermatomyositis and Polymyositis, 37 (May)

Riley, Nancy M., Urbana, Illinois; The Abused Child, 33 (Sept.)

Rosen, Peter, MD, Worland, Wyoming; Cardioversion in a Postoperative Patient, 48 (May)

Rusk, Harvey S., MD, Pueblo, Colorado; How Smoking Causes Lung Cancer, 37 (Oct.)

Ryan, Donald W., MD, Denver, Colorado; Thymectomy in Myasthenia Gravis, 37 (June)

Ryan, Michael, MD, Flagstaff, Arizona; Postdialysis Convulsions, 41 (Dec.)

Saksena, Devendra, MD, Salt Lake City, Utah; Spontaneous Abdominal Aorto-vena Caval Fistula, 23 (Jan.)

Sanchez, Ray, Albuquerque, New Mexico; Rural Health Care in New Mexico, 53 (Sept.)

Savage, E. P., PhD, Fort Collins, Colorado; Pesticide Poisonings in Rural Colorado, 29 (April)

Schirger, Alexander, MD, Rochester, Minnesota; Malignancies of the Cardiovascular System, 34 (April); Cardiovascular Manifestation of Malignancies, 37 (August)

Schoonmaker, Fred W., MD, Denver, Colorado; Premature Atrial Contractions, 60 (March)

Smart, Charles R., MD, Salt Lake City, Utah; Melanoma in Utah, 29 (Jan.); Preliminary Evaluation of Rocky Mountain States Cooperative Tumor Registry, 39 (April)

Smith, Karyn, RN, Salt Lake City, Utah; Newborn Intensive Care in the Intermountain West, 16 (Jan.)

Sohn, Anton P., MD, Reno, Nevada; Multiple Hypothalamic Disorders Produced by a Suprasellar Germinoma, 23 (March)

Sorensen, Bruce F., MD, Salt Lake City, Utah; Excision of Spinal Cord Arteriovenous Malformation, 21 (June)

Stephenson, H. N., MD, Newcastle, Wyoming; Uterine Inversion, 29 (July)

Stoenner, Herbert G., DVM, Hamilton, Montana; Differential Diagnosis of Leptospirosis in Man, 25 (May)

Thompson, Horace E., MD, Denver, Colorado; Laparoscopy in Gynecology, 11 (August)

Trujillo, Joel, Albuquerque, New Mexico; Medical Problems Among Rural Hippies, 37 (Sept.)

Vatter, A. E., PhD, Denver, Colorado; Herpes Simplex Encephalitis, 22 (August)

Verhave, Jacobus H., MD, Clovis, New Mexico; Pre-hospital Phase of an Acute Coronary Attack, 21 (April)

Whang, Robert, MD, Albuquerque, New Mexico; Postdialysis Convulsions, 41 (Dec.)

Williams, C. Basil, MD, Ogden, Utah; Bacterial Endocarditis on a Prosthetic Aortic Valve, 29 (Oct.)

Williams, L. P., Jr., DVM, Fort Collins, Colorado; Pesticide Poisonings in Rural Colorado, 29 (April)

Wilson, William J., MD, Omaha, Nebraska; Correlation of Coronary Arteriograms with Master's Test and Treadmill Test, 30 (May)

Woolf, Robert M., MD, Salt Lake City, Utah; Hypospadias—One stage repair, 35 (Jan.); Hypospadias—Two stage repair, 37 (Jan.)

Yedinak, Paul R., MD, Rock Springs, Wyoming; An Unusual Foreign Body, 13 (July)

Zimmerman, Robert A., PhD, Denver, Colorado; Neonatal Infection Due to Group B Streptococcus, 48 (Feb.)

Zumpft, Charles W., MD, Las Vegas, Nevada; Sequential Oral Contraception, 39 (March)

SUBJECT INDEX, VOLUME LXVIII

Abdominal Bruit Associated with Bacillary Dysentery, 23 (May) (Lee, Buker)

Abortion and Euthanasia: A Reply, 40 (Feb.) (Lamm, Davison)

Abused Child, The, 33 (Sept.) (Riley)

Acute Hypokalemia Occurring During the Treatment of Diabetic Acidosis, 46 (Sept.) (Hodgin)

Addicted Physician, The, 24 (June) (Osberg)

Adequate Medical Care and Its Distribution—No Simple Answer, 10 (August) (Editorial)

AMA President Hall Speaks in Washington, 23 (Nov.) (Editorial)

AMA, Something Better Than the?, 27 (Dec.) (Editorial)

Anesthesia in the Parkinsonian on Levo-Dopa, 60 (Nov.) (Greenhouse)

Aneurysm, Ascending Aortic, 29 (Dec.) (Poucel, Rainer)

Anticoagulants in Acute Coronary Disease, 55 (Oct.) (Brettell)

"Anti-Science Era" in Washington, The, 25 (Feb.) (Editorial)

Ascending Aortic Aneurysm, 29 (Dec.) (Poucel, Rainer)

Atrial Contractions, Premature, 60 (March) (King, Dorney, Schoonmaker)

Bacillary Dysentery, Abdominal Bruit Associated with, 23 (May) (Lee, Buker)

Bacterial Endocarditis on a Prosthetic Aortic Valve, 29 (Oct.) (Jahsman, Williams)

Beware Hot Weather Football Practice, 21 (Oct.) (Editorial)

Book Corner, 44 (Jan.); 80 (Feb.); 14 (March); 54 (April); 16 (May); 4 (June); 65 (July); 69 (Sept.); 12 (Nov.)

Carcinoma of the Cecum, 29 (June) (Cardelli)

Cardiogenic Shock, 51 (Nov.) (Bartecchi, Howe)

Cardiopulmonary Resuscitation Training, 11 (Jan.) (Johnson, Castle)

Cardiovascular Manifestation of Malignancies, 37 (August) (Schirger)

Cardiovascular System, Malignancies of the, 34 (April) (Schirger)

Cardioversion in a Postoperative Patient, 48 (May) (Rosen)

Cecum, Carcinoma of the, 29 (June) (Cardelli)

Cervical Disease, Management of Premalignant, 27 (August) (Creasman)

Cervical Syndromes, Surgery of the, 27 (March) (Morelli, Mack)

Chemodectomas of the Ear, 63 (Feb.) (Ratzer)

Child Health Associate, The, 25 (Nov.) (Fine)

CHILDREN'S HOSPITAL, DENVER:
Neonatal Infection Due to Group B Streptococcus, 48 (Feb.) (Franciosi, Zimmerman, Favara, Butterfield)

Coagulopathies, 41 (Jan.) (Maternal Mortality)

Colorado, 45 (Jan.); 72 (Feb.); 64 (March); 57 (April); 51 (May); 54 (June); 61 (July); 44, 52 (August); 68 (Sept.); 63 (Oct.); 64 (Nov.)

Colorado Medical Society Annual Meeting Program, 52 (August)

Colorado State Science Fair, 54 (June)

Colorado State Hospital, General Hospital Services of the, 63 (Oct.) (Looby)

Colorado Tick Fever, 60 (Feb.) (Earnest, Breckinridge, Barr, Franey, Mollohan)

Colorado Winter Clinics Program, 72 (Feb.)

Colorado's President-elect, 64 (Nov.)

Combating Drug Abuse in Wyoming, 43 (April) (Haller)

Community and Family Medicine, Department of, 43 (June) (Castle, Kane)

Compromised Renal Function Secondary to Spontaneous Retroperitoneal Hemorrhage, 36 (Feb.) (Pappas, Guillen, Davies)
Continuing Education, 21 (May) (Editorial)

Convulsions, Postdialysis, 41 (Dec.) (Whang, Draney, Ryan)

COOPERATIVE TUMOR REGISTRY:
Melanoma in Utah, 29 (Jan.) (Cowan, Smart, Moslander)
Preliminary Evaluation of Rocky Mountain States Cooperative Tumor Registry, 39 (April) (Smart, Fitzpatrick)

Coronary Arteriograms with Master's Test and Treadmill Test, Correlation of, 30 (May) (Lewis, Wilson)

Coronary Attack, Pre-hospital Phase of an Acute, 21 (April) (Verhave)

Coronary Disease, Anticoagulants in Acute, 55 (Oct.) (Brettell)

Correlation of Coronary Arteriograms with Master's Test and Treadmill Test, 30 (May) (Lewis, Wilson)

"Crisis in Confidence, A" 10 (July) (Editorial)

Current Approaches to Continuing Education, 25 (Sept.) (Editorial)

Department of Community and Family Medicine, 43 (June) (Castle, Kane)

Dermatomyositis and Polymyositis, 37 (May) (Reynolds)

Diabetic Acidosis, Acute Hypokalemia Occurring During the Treatment of, 46 (Sept.) (Hodgin)

Differential Diagnosis of Leptospirosis in Man, 25 (May) (Stoenner)

Diseases Among the Navajo Indians, 39 (Nov.) (Muggia)

Doctor! When Should You Retire?, 32 (Oct.) (Barber)

Drug Abuse in Wyoming, Combating, 43 (April) (Haller)

Dupuytren's Contracture, 49 (Oct.) (Horner, Bralliar)

Ecologic Illness, 23 (Oct.) (Dickey)

Ecology and the Doctor, 25 (Feb.) (Editorial)

Edema, Iatrogenic Pulmonary, 32 (Dec.) (Dohner)

Electroshock, Effete or Essential?, 12 (June) (Conde)

Emphysema, Tracheal Support in the Treatment of, 19 (August) (Rainer, Newby, Dirks)

Encephalitis, Herpes Simplex, 22 (August) (Kjeldsberg, Maeintyre, Vatter, Garlett)

Esophagus, Hemangiomas of the, 37 (July) (Loughry)

Excision of Spinal Cord Arteriovenous Malformation, 21 (June) (Reichman, Sorensen)

Fractures of the Orbital Floor, 15 (July) (Omohundro, Elliott)

Fragmented Patient, The, 43 (March) (Curran)

Freud in the American Scene, 33 (June) (Campbell)

Fulminating Toxemia, 70 (Feb.) (Maternal Mortality)

Galactorrhea—A Clinical Approach, 27 (Nov.) (Buckman)

Gastrointestinal Bleeding Among Navajo Indians, Upper, 29 (Sept.) (Muggia)

Gastrointestinal Malignant Melanoma, 42 (July) (MacLean)

General Hospital Services of the Colorado State Hospital, 63 (Oct.) (Looby)

Geriatric Patient, Psychopharmacology in the, 44 (July) (Reed)

Gynecology, Laparoscopy in, 11 (August) (Engel, Reid, Thompson)

Hansen's Disease in a Peripheral Nerve, 40 (July) (Grizzle)

Hazard of Pacemaker Function, 26 (Feb.) (Editorial)

Hearing Loss Caused by Prenatal Rubella, 43 (Dec.) (Browder)

Hearing Loss in Preschool New Mexico Children, 49 (Sept.) (Browder)

Hemangiomas of the Esophagus, 37 (July) (Loughry)

Hemodialysis in the Rocky Mountain Region, Home, 57 (Nov.) (Pingerra, Holmes, Gutch, Kolff)

Heroin Addicts in New Mexico, Tattoos of, 63 (Sept.) (Bennahum)

Herpes Simplex Encephalitis, 22 (August) (Kjeldsberg, Macintyre, Vatter, Garlett)

Hippies, Medical Problems Among Rural, 37 (Sept.) (Curb, Trujillo)

Histiocytosis X in a Female Patient, Primary Pulmonary, 59 (Sept.) (Kramer, MacQuigg)

Home Hemodialysis in the Rocky Mountain Region, 57 (Nov.) (Pingerra, Holmes, Gutch, Kolff)

How Smoking Causes Lung Cancer, 37 (Oct.) (Rusk)

Hypnosis—Magic or Quackery?, 31 (August) (Howell)

Hypospadias—One Stage Repair, 35 (Jan.) (Broadbent, Woolf)

Hypospadias—Two Stage Repair, 37 (Jan.) (Broadbent, Woolf)

Hypothalamic Disorders Produced by a Suprasellar Germinoma, Multiple, 23 (March) (Sohn, Pittman)

Iatrogenic Pulmonary Edema, 32 (Dec.) (Dohner)

Indians, Diseases Among the Navajo, 39 (Nov.) (Muggia)

Indians, Upper Gastrointestinal Bleeding Among Navajo, 29 (Sept.) (Muggia)

Interposition of the Colon Between the Liver and Diaphragm, 38 (Feb.) (Lenz)

Intrauterine Device in Pregnancy, The Missing, 32, (July) (Bailey)

Laparoscopy in Gynecology, 11 (August) (Engel, Reid, Thompson)

Leptospirosis in Man, Differential Diagnosis of, 25 (May) (Stoenner)

Lethal Midline Granuloma, 40 (Oct.) (Lehman)

Letters to the Editor, 7 (Feb.); 3 (May); 4 (June); 3 (July); 3 (August); 3 (Sept.); 3 (Nov.)

Levo-Dopa, Anesthesia in the Parkinsonian on, 60 (Nov.) (Greenhouse)

Load to Share, A, 21 (March) (Editorial)

Lung Cancer, How Smoking Causes, 37 (Oct.) (Rusk)

Lupus Erythematosus, 58 (Oct.) (Kjeldsberg)

Magic, Science, and Head Circumference, 42 (May) (Barmeyer)

Malignancies, Cardiovascular Manifestation of, 37 (August) (Schirger)

Malignancies of the Cardiovascular System, 34 (April) (Schirger)

Management of Premalignant Cervical Disease, 27 (August) (Creasman)

MATERNAL MORTALITY:
Coagulopathies, 41 (Jan.); Fulminating Toxemia, 70 (Feb.)

Medical Care—The Political Pawn, 22 (May) (Editorial)

MEDICAL CONFERENCE FROM THE UNIVERSITY OF NEW MEXICO SCHOOL OF MEDICINE:
Fragmented Patient, The, 43 (March) (Curran)

Medical Education, Recent Trends in, 19 (July) (Castleton)

Medical Memorabilia—Utah's First Medical School, 21 (Jan.) (Fitzpatrick)

Medical Problems Among Rural Hippies, 37 (Sept.) (Curb, Trujillo)

Medical School Notes, 45 (Jan.); 87 (Feb.); 67 (March); 66 (April); 12 (May); 55 (June); 64 (July); 45 (August); 70 (Sept.); 68 (Oct.); 13 (Nov.); 50 (Dec.)

Meetings, 48 (Jan.); 81 (Feb.); 19 (March); 70 (April); 14 (May); 62 (June); 63 (July); 57 (August); 73 (Sept.); 70 (Oct.); 76 (Nov.); 21 (Dec.)

Melanoma, Gastrointestinal Malignant, 42 (July) (MacLean)

Melanoma in Utah, 29 (Jan.) (Cowan, Smart, Moslander)

Missing Intrauterine Device in Pregnancy, The, 32 (July) (Bailey)

Montana, 45 (Jan.); 64 (March); Special Issue 50 (May); 55 (June); 48 (August); 68 (Sept.); 65 (Oct.); 65 (Nov.); 49 (Dec.)

Montana Medical Association Annual Meeting Program, 48 (August)

Mood Altering Agent Use in America, 27 (Feb.) (Dohner)

More About the "Right to Die," 24 (Nov.) (Editorial)

More Doctors—How Are We Going to Get Them?, 13 (April) (Editorial)

Multiple Hypothalamic Disorders Produced by a Suprasellar Germinoma, 23 (March) (Sohn, Pittman)

Myasthenia Gravis, Thymectomy in, 37 (June) (Kukral, Ryan)

National Affairs, 83 (Feb.)

Neonatal Infection Due to Group B Streptococcus, 48 (Feb.) (Franciosi, Zimmerman, Favara, Butterfield)

Neurologic Injury, 32 (March) (Mack)

Neurosis, Psychosurgical Treatment of, 25 (August) (Boyd, Freed)

Nevada, 73 (Feb.); Special Issue (March); 57 (April); 56 (August); 17 (Sept.); 65 (Nov.)

Nevada State Medical Association Proceedings of the House of Delegates, 73 (Feb.); Annual Meeting, 56 (August); Annual Meeting Program, 17 (Sept.)

Newborn Intensive Care in the Intermountain West, 16 (Jan.) (Jung, Smith)

New Mexico, 44 (Aug.); Special Issue (Sept.); 65 (Nov.)

New Mexico Medical Society Annual Meeting Program, 6-7 (May)

New Source of Medical Manpower?, A, 23 (Nov.) (Editorial)

New Therapeutic Scleral Lens, A, 26 (July) (Morgan)

Nocardiosis, Pulmonary, 50 (March) (Nims, Karel, Fink)

Obituaries, 53 (Jan.); 76 (Feb.); 66 (March); 69 (April); 59 (May); 58 (June); 62 (July); 47 (August); 68 (Sept.); 67 (Oct.); 68 (Nov.); 54 (Dec.)

Occupational Medical Services for Small Employee Units, 31 (Nov.) (Bond)

Officers Page, 91 (Feb.); 64 (May); 59 (August); 57 (Dec.)

Oral Contraception, Sequential, 39 (March) (Zumpft)

Orbital Floor, Fractures of the, 15 (July) (Omohundro, Elliott)

Organ Transplantation and the Law, 47 (April) (Beresford)

Our Cover Photo, 11 (July) (Editorial)

Parkinsonian on Levo-Dopa, Anesthesia in the, 60 (Nov.) (Greenhouse)

Peer Review and Continuing Education, 21 (March) (Editorial)

Percutaneous Biopsies in Diagnosis of Renal Disease, 21 (May) (Editorial)

Peripheral Nerve, Hansen's Disease in a, 40 (July) (Grizzle)

Pesticide Poisonings in Rural Colorado, 29 (April) (Savage, Bagby, Mounce, Williams, Cholas)

Physician Distribution in New Mexico, 26 (Sept.) (Editorial)
Pollen, Mold and Plant Survey, 1970, 44 (May) (Anderson, Hoppel)
Polymyositis, Dermatomyositis and, 37 (May) (Reynolds)
Postdialysis Convulsions, 41 (Dec.) (Whang, Draney, Ryan)
Potpourri, 57 (Mar.); 52 (May); 49 (June); 44 (Sept.); 37 (Dec.) (Babey)
Pre-hospital Phase of an Acute Coronary Attack, 21 (April) (Verhave)
Preliminary Evaluation of Rocky Mountain States Cooperative Tumor Registry, 39 (April) (Smart, Fitzpatrick)
Premature Atrial Contractions, 60 (March) (King, Dorney, Schoonmaker)
Prenatal Rubella, Hearing Loss Caused by, 43 (Dec.) (Browder)
Pre-premedical Experience for High School Students, 9 (June) (Hill)
Primary Pulmonary Histiocytosis X in a Female Patient, 58 (Sept.) (Keaner, MacQuigg)
Prophylactic Lithium Therapy, 25 (April) (Billings)
Propranolol: An Adjunct to Definitive Treatment of Thryotoxicosis, 41 (Sept.) (Friedenberg)
Pros and Cons of National Health Insurance, The, 55 (Feb.) Petersen)
Psychopharmacology in the Geriatric Patient, 44 (July) (Reed)
Psychosurgical Treatment of Neurosis, 25 (August) (Boyd, Freed)
Publication Rules and Suggestions to Authors, 3 (March); 4 (May); 60 (August); 50 (Nov.); 10 (Dec.)
Pulmonary Edema, Iatrogenic, 32 (Dec.) (Dohner)
Pulmonary Nocardiosis, 50 (March) (Nims, Karel, Fink)

Quality of Education, 21 (Oct.) (Editorial)

Recent Trends in Medical Education, 19 (July) (Castleton)
Rocky Mountain Cancer Conference Program, 25th Annual, 60 (June)
Rubella, Hearing Loss Caused by Prenatal, 43 (Dec.) (Browder)
Rocky Mountain Medical Conference, 56 (August); Program, 17 (Sept.)
Rubella Vaccination in the Puerperium, 46 (Oct.) (Delaney)
Rumblings from "Down Under", 7 (June) (Editorial)
Rural Health Care in New Mexico, 53 (Sept.) (Sanchez, Bynum)

Scleral Lens, A New Therapeutic, 26 (July) (Morgan)
Sequential Oral Contraception, 39 (March) (Zumpft)
Something Better Than the AMA?, 27 (Dec.) (Editorial)
Sovereigns and Servants, 9 (Jan.) (Editorial)
Spinal Cord Arteriovenous Malformation, Excision of, 21 (June) (Reichman, Sorensen)
Spontaneous Abdominal Aorto-vena Caval Fistula, 23 (Jan.) (Saksena, Ford)
Statement of Ownership, Management and Circulation, 81 (Nov.)
Surgery of the Cervical Syndromes, 27 (March) (Morelli, Mack)
System for Continuing Medical Education, A, 43 (Feb.) (Erickson)

Tattoos of Heroin Addicts in New Mexico, 63 (Sept.) (Bennahum)
Thymectomy in Myasthenia Gravis, 37 (June) (Kukral, Ryan)
Thyrotoxicosis, Propranolol: An Adjunct to Definitive Treatment of, 41 (Sept.) (Friedenberg)
Tracheal Support in the Treatment of Emphysema, 19 (Aug.) (Rainer, Newby, Dirks)
Tribute to Hilmon Castle, MD, 10 (Jan.) (Editorial)
TUMOR CONFERENCE FROM THE UNIVERSITY OF COLORADO MEDICAL CENTER:
Chemodectomas of the Ear, 63 (Feb.) (Ratzer)

Unusual Foreign Body, An, 13 (July) (Yedinak)
Upper Gastrointestinal Bleeding Among Navajo Indians, 29 (Sept.) (Muggia)
Utah, Special Issue (Jan.); 58 (April); 54 (August)
Utah State Medical Association Annual Meeting Program, 54 (August)
Uterine Inversion, 29 (July) (Stephenson)

Venereal Disease Education Program, 28 (Dec.) (Editorial)
Washington Scene, 16 (March); 72 (Nov.); 11 (Dec.)
What if We Lose?, 9 (July) (Editorial)
What's the Rhythm?, 40 (Jan.); 39 (Dec.) (Lindsay)
"Why Costs Are Rising", 9 (August) (Editorial)
Wyoming, 50 (May); Special Issue 52, 54 (July)
Wyoming State Medical Society Annual Meeting, 52 (July); Proceedings of the House of Delegates, 54 (July); Annual Meeting Program, 50 (August)

BOOK REVIEWS, VOLUME LXVIII

Emergency Care and Transportation of the Sick and Injured. The American Academy of Orthopaedic Surgeons, 14 (March)
Rape: Offenders and Their Victims by John M. Macdonald, MD, 65 (July)

OBITUARIES, VOLUME LXVIII

Amesse, John (Colorado) 68 (Nov.)
Anderson, Gordon Arnold (Montana) 59 (May)
Anderson, J. Mercer (Utah) 60 (May)
Beach, Glenn O. (Wyoming) 67 (Oct.)
Blevins, Jason L. (Colorado) 68 (Sept.)
Bortree, Leo W. (Colorado) 76 (Feb.)
Bridenbaugh, John Harlan (Montana) 59 (May)
Carmichael, Earle K. (Colorado) 47 (August)
Collett, Robert W. (Colorado) 68 (Nov.)
Connell, Joseph E. A. (Colorado) 58 (June)
Daniels, Luman E. (Colorado) 67 (Oct.)
DeKay, Emory W. (Wyoming) 47 (August)
Draper, Roscoe L. (Utah) 54 (Jan.)
Fairbanks, E. B. (Utah) 69 (April)
Frumess, Gerald M. (Colorado) 67 (Oct.)
Gramlich, Ralph C. (Wyoming) 54 (Dec.)
Greene, Laurence Whitridge (Colorado) 67 (Oct.)
Gromer, Terry J. (Colorado) 53 (Jan.)
Hall, Cecil Maurice (Montana) 54 (Jan.)
Hannum, Marshall J., Jr. (Wyoming) 59 (May)
Harvey, Edward Lee (Colorado) 78 (Feb.)
Hill, Kenneth (Utah) 69 (Nov.)
Hopkins, Hugh John (Colorado) 66 (March)
Horsley, William W. (Wyoming) 59 (May)
Jankovsky, Kenneth Adolph (Colorado) 69 (April)
Johnson, Frank Craig (Colorado) 53 (Jan.)
Jones, James Kent, (Utah) 68 (Nov.)
Key, Roy Whitfield (Montana) 54 (Dec.)
LaMoure, Howard A. (Colorado) 62 (July)
Linfesty, John W. (Colorado) 62 (July)
McDill, Wilson F. (Wyoming) 54 (Dec.)
Nelson, John Miller (Montana) 54 (Dec.)
Nemir, Alma (Utah) 69 (Nov.)
Noble, Willard G. (Utah) 60 (May)
Petri, Kenneth N. (Wyoming) 47 (August)
Poundstone, Robert Wendell (Montana) 66 (March)
Pugmire, Adrian S. (Utah) 78 (Feb.)
Reed, Orville Clinton (Wyoming) 66 (March)
Richards, Guy Smith (Utah) 47 (August)
Ridges, Alfred Joseph (Utah) 66 (March)
Rogers, James Grafton (Colorado) 58 (June)
Ronniger, Paul C. (Utah) 59 (June)
Ryan, John G. (Colorado) 62 (July)
Seerley, Clement Clifford (Montana) 58 (June)
Sells, Virgil E. (Colorado) 54 (Jan.)
Skidmore, Demoivre R. (Utah) 59 (June)
Stiles, George W. (Colorado) 77 (Feb.)
Stuck, Ralph M. (Colorado) 69 (April)
Sudan, Archer C., Sr. (Colorado) 55 (Dec.)
Tanglin, Walter George Ludwig (Montana) 58 (June)
Taufer, Louis J. (Utah) 59 (June)
Tuteur, Richard (Colorado) 59 (May)
Walls, Arch (Montana) 59 (June)
Willett, Frederick E. (Colorado) 78 (Feb.)
Wirthlin, LeRoy A. (Utah) 60 (May)
Zarit, John I. (Colorado) 77 (Feb.)

should not be exceeded, and medication should be kept out of reach of children. Signs of accidental overdosage may include severe respiratory depression, flushing, lethargy or coma, hypotonic reflexes, nystagmus, pinpoint pupils, tachycardia; continuous observation is necessary. The subtherapeutic amount of atropine sulfate is added to discourage deliberate overdosage.

Adverse Reactions: Side effects reported with Lomotil therapy include nausea, sedation, dizziness, vomiting, pruritus, restlessness, abdominal discomfort, headache, angioneurotic edema, giant urticaria, lethargy, anorexia, numbness of the extremities, atropine effects, swelling of the gums, euphoria, depression and malaise.

Overdosage: The medication should be kept out of reach of children since accidental overdosage may cause severe, even fatal, respiratory depression.

Dosage: The recommended average initial daily dosages, given in divided doses until diarrhea is controlled, are as follows:

Children:

3-6 mo....½ tsp.* t.i.d. (3 mg.)
6-12 mo...½ tsp. q.i.d. (4 mg.)
1-2 yr.....½ tsp. 5 times daily (5 mg.)
2-5 yr.....1 tsp. t.i.d. (6 mg.)
5-8 yr.....1 tsp. q.i.d. (8 mg.)
8-12 yr....1 tsp. 5 times daily (10 mg.)
Adults:....2 tsp. 5 times daily (20 mg.)
or 2 tablets q.i.d.

*Based on 4 cc. per teaspoonful.

Use of Lomotil is not recommended in infants less than 3 months of age.

Maintenance dosage may be as low as one-fourth the initial daily dosage.

SEARLE

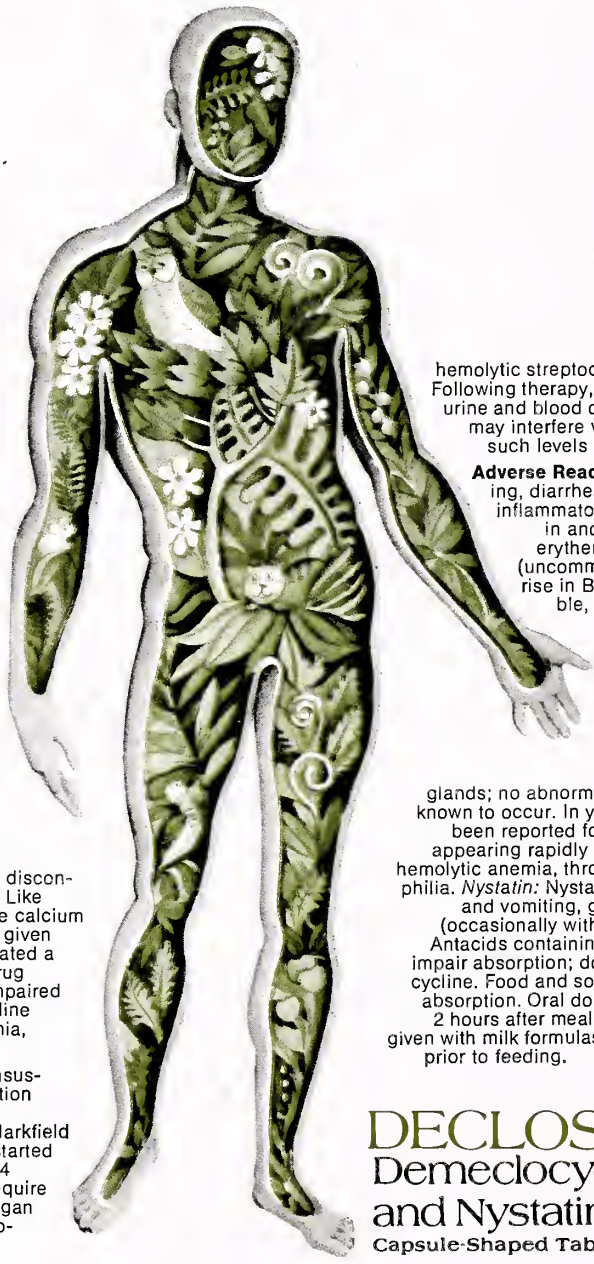
Manufactured by SEARLE & CO.
San Juan, Puerto Rico 00936

For more detailed medical information write:
G. D. Searle & Co., Medical Department,
P.O. Box 5110, Chicago, Illinois 60680
Research in the Service of Medicine

HUMAN ECOLOGY

Human beings are ecosystems, inhabited by populations of microorganisms. When antibiotics alter the balance of these populations in the G.I. tract, monilial overgrowth can ensue. The Nystatin component of DECLOSTATIN is present to help control such overgrowth.

DECLOSTATIN is particularly relevant for treatment of bacterial infection caused by sensitive organisms in such monilia susceptible patients as diabetics, the elderly or debilitated, and others with a history of moniliasis.



Actions: Tetracyclines are active against a wide range of gram-negative and gram-positive organisms. Nystatin is an antifungal agent against *Candida* (monilia) *albicans*.

Contraindications: Hypersensitivity to any tetracycline or nystatin.

Warnings: The Use of Drugs of the Tetracycline Class During Tooth Development (Last Half of Pregnancy, Infancy and Childhood to the Age of 8 Years) May Cause Permanent Discoloration of the Teeth (Yellow-Gray-Brown). This Adverse Reaction is More Common During Long-Term Use of the Drugs But Has Been Observed Following Repeated Short-Term Courses. Enamel Hypoplasia Has Also Been Reported. *Tetracycline Drugs, Therefore, Should Not be Used in This Age Group Unless Other Drugs Are Not Likely To be Effective or Are Contraindicated.* In renal impairment, usual doses may lead to excessive accumulation and liver toxicity. Under such conditions, use lower doses, and, in prolonged therapy, determine serum levels. Phototoxic reactions, characterized by severe burns of exposed surfaces, can result from direct exposure to sunlight during therapy with moderate to large doses of demeclocycline. Advise patient of this reaction to sunlight or ultraviolet light, and discontinue treatment at first evidence of skin erythema. Like other tetracyclines, demeclocycline forms a stable calcium complex in any bone-forming tissue. Prematures, given oral doses of 25 mg./kg. every 6 hours, demonstrated a decrease in fibula growth rate, reversible when drug was discontinued. In patients with significantly impaired renal function, the antianabolic action of tetracycline may cause an increase in BUN, leading to azotemia, hyperphosphatemia, and acidosis.

Precautions: Use may result in overgrowth of nonsusceptible organisms, including fungi. If superinfection occurs, institute appropriate therapy. In venereal diseases when coexistent syphilis is suspected, darkfield examination should be done before treatment is started and blood serology repeated monthly for at least 4 months. Patients on anticoagulant therapy may require downward adjustment of such dosage. Test for organ system dysfunction (e.g., renal, hepatic and hemopoietic) in long-term use. Treat all Group A beta hemolytic streptococcal infections for at least 10 days. Following therapy, persistence for several days in both urine and blood of bacteriosuppressive levels of drug may interfere with culture studies. Do not consider such levels as therapeutic.

Adverse Reactions: *G.I.:* anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in anogenital region. *Skin:* maculopapular erythematous rashes. Exfoliative dermatitis (uncommon). Photosensitivity. *Renal toxicity:* rise in BUN, dose-related. Transient, reversible, nephrogenic diabetes insipidus with excessive thirst and polyuria (rare). *Hypersensitivity reactions:* urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus. When given over prolonged periods, tetracyclines may produce brown-black microscopic discoloration of thyroid glands; no abnormalities of thyroid function studies are known to occur. In young infants, bulging fontanels have been reported following full therapeutic dosage, disappearing rapidly when drug was discontinued. *Blood:* hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia. *Nystatin:* Nystatin has been associated with nausea and vomiting, gastrointestinal distress and diarrhea (occasionally with large doses). *Concomitant therapy:* Antacids containing aluminum, calcium, or magnesium impair absorption; do not give to patient taking oral tetracycline. Food and some dairy products also interfere with absorption. Oral doses should be given 1 hour before or 2 hours after meals. Pediatric oral doses should not be given with milk formulas, but should be given at least 1 hour prior to feeding.

DECLOSTATIN® 300

Demeclocycline HCl 300mg and Nystatin 500,000 Units

Capsule-Shaped Tablets Lederle

Lederle LEDERLE LABORATORIES, A Division of American Cyanamid Company, Pearl River, New York 10965

337-1

LIBRARY OF THE
COLLEGE OF PHYSICIANS
OF PHILADELPHIA

This Book is due on the last date stamped below. No further preliminary notice will be sent. Requests for renewals must be made on or before the date of expiration.

DUE	DUE
FEB 26 1974	
SEP 12 1989	

A fine of twenty-five cents will be charged for each week or fraction of a week the book is retained without the Library's authorization.